Response Action Contract IX

REVISED WORK PLAN
FOR
OMEGA CHEMICAL SUPERFUND SITE
OPERABLE UNIT 02
REMEDIAL INVESTIGATION/ FEASIBILITY STUDY

U.S. Environmental Protection Agency
Contract No. 68-W-98-225

CH2M HILL, Inc.
and Team Subcontractors:
URS Group, Inc.
E2 Consulting Engineers, Inc.

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FOR
OMEGA CHEMICAL SUPERFUND SITE
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Prepared for:
Contract No. 68-W-98-225/WA No. 175-RICO-09BC
U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, California 94105

Prepared by:
CH2M HILL, Inc.
3550 Vine Street, Suite 320
Riverside, California 92507

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This Revised Work Plan is submitted for WA No. 175-RICO-09BC, and reflects our best estimates and/or actual costs as of this date. By submitting this Revised Work Plan, CH2M HILL grants the Contracting Officer or an authorized representative the right to examine at any time before award those books, records, documents, and other types of factual information, regardless of form or whether such supporting information is specifically referenced or included herein as the basis for pricing, that will permit an adequate evaluation of this Revised Work Plan budget.

Udai P. Singh, RAC IX Program Manager

12-3-04
Date of Submission

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Part I

CONFIDENTIAL BUSINESS INFORMATION

This document has been prepared for the U.S. Environmental Protection Agency under Contract No. 68-W-98-225 and contains confidential CH2M HILL business information. The material contained in Part II is not to be disclosed to, discussed with, or made available to any person or persons for any reason without prior expressed approval of a responsible official of the U.S. Environmental Protection Agency. It shall not be released outside of the U.S. Environmental Protection Agency without the expressed approval of CH2M HILL.

1.0 Introduction

CH2M HILL submits this **Revised** Work Plan for Work Assignment (WA) No. 175-RICO-09BC under EPA Contract No. 68-W-98-225, in response to WAF No. 175-RICO-09BC, Revisions **00, 01, & 02 (WAF Revs. 00, 01, & 02) and Work Plan (submitted on November 4, 2003) negotiations with EPA on August 19, 2004.** This WA authorizes CH2M HILL to conduct a Remedial Investigation/Feasibility Study (RI/FS) of Operable Unit 02 (OU-2) at the Omega Chemical Superfund Site located in Whittier, California, and preparation of this **Revised** Work Plan which is consistent with the Statement of Work (SOW) dated September 12, 2003 attached to WAF Rev. 02.

The Period of Performance for this WA is July 24, 2003 through September 30, 2005.

In developing **the** Work Plan **submitted to EPA on November 4, 2003,** CH2M HILL's understanding of the WA objectives **was** derived from EPA's SOW and the scoping meeting conducted on August 20, 2003 via teleconference to review the SOW. **EPA comments on the Work Plan were communicated at a negotiation teleconference on August 19, 2004 and discussions with the EPA WAM. This Revised Work Plan reflects agreements reached between EPA and CH2M HILL at this teleconference; changes to the text appear in bold print.**

The primary purpose of this WA is to conduct RI/FS activities at the Omega Chemical Superfund Site to select a remedy that will eliminate, reduce, or control risks to human health and the environment. The SOW sets forth the framework and requirements for this effort. The goal is to develop the minimum amount of data necessary to support the selection of an approach for site remediation and then to use these data in well-supported documents, leading to and including the Record of Decision (ROD).

CH2M HILL will assist EPA by collecting the existing data and developing a scope of work that will be used as the basis of field activities to be implemented either by CH2M HILL or by a PRP group. In the event that the PRP group performs some or all of the field work, CH2M HILL will perform PRP oversight. EPA will provide CH2M HILL with a draft scope of field work for OU-2 (the plume downgradient of the facility property) and CH2M HILL will provide comments and revise the scope of work as directed by the WAM. OU-2 field work will include installation and sampling of new groundwater wells, quarterly sampling of existing wells, soil vapor testing, and/or aquifer testing as necessary. Non-field activities such as the Risk Assessment and Feasibility Study will be performed by CH2M HILL.

In the event that PRP oversight is required, CH2M HILL will evaluate the number, depth, and location of new groundwater monitoring wells, review PRP design submittals for the new wells, oversee the construction of the new wells, evaluate the development of the new wells, etc. The PRP group will likely be tasked with conducting multiple rounds of groundwater sampling at the site and EPA will require CH2M HILL to conduct split sampling. CH2M HILL will also be tasked with assisting EPA in developing a cost estimate for implementing the RI/FS at the site.

2.0 Site Background

The Omega Chemical Corporation Site is a former refrigerant/solvent recycling operation in Whittier, California, a community of approximately 70,000 people. It is located across the street from a residential neighborhood and within one mile of several schools, including three elementary schools and two high schools. Data from groundwater and soil sampling from a site assessment conducted by the site owner/operator, Dennis O'Meara, in 1988, and data from a preliminary assessment conducted by EPA in January 1995, indicated the presence of hazardous substances including methylene chloride, tetrachloroethylene, and trichloroethylene in the subsurface soils and groundwater at the Site. Chemical were stored in drums in various stages of deterioration, many of which were leaking, leading EPA to determine that an imminent and substantial endangerment existed at the Site and required a removal action.

On May 3, 1995, EPA issued an Action Memorandum authorizing a removal action involving the following response actions: (a) securing the Site; (b) sampling and categorizing hazardous materials; (c) removal of hazardous substances and grossly contaminated equipment, structures, and debris; (d) sampling surface and subsurface soils and groundwater to determine the nature and extent of contamination; (e) disposing, stabilizing or treating grossly contaminated soils; and (f) grading, capping, and fencing areas where contamination remained in the soil.

As part of the Operable Unit 01 (OU-1) effort, EPA entered into a Partial Consent Decree with some of the PRPs at the site. This Partial Consent Decree was entered into the District Court on February 23, 2001 and the group agreed to perform the following work at the Site: (1) implementation of an RI/FS for contamination in the Vadose Zone within what is known as the "Phase 1A area" of the Site; (2) performance of an EE/CA addressing groundwater contamination in the Phase 1A area; (3) implementation of the response action selected in EPA's Action Memorandum at the conclusion of the EE/CA (which is expected to be a groundwater treatment system, e.g. pump and treat, located at the downgradient edge of the Phase 1A area; (4) performance of a risk assessment for potential contamination resulting from releases or threatened releases of hazardous substances from the Omega Property within the Phase 1A area; and (5) installation of up to three groundwater monitoring wells at locations downgradient of the Phase 1A area and upgradient of the City of Santa Fe Springs water supply well 30R3. The work to be done under OU-2 will be coordinated with the OU-1 effort, but the technical work will be separate, and will be tracked and billed separately for cost recovery purposes.

The OU-2 effort for this statement of work will include implementation of RI/FS and supporting activities as described. As of this date, two years of groundwater sampling in the OU-2 area has been collected by EPA's previous technical support contractor, Weston Solutions, Inc. (Weston).

3.0 Project Approach—Work to be Performed

This section documents CH2M HILL's approach to accomplish the Statement of Work (SOW) and provides the Basis of Estimate (BOE) for costs associated with the EPA-defined tasks and subtasks identified in the SOW for WA No. 175-RICO-09BC. A description of each task and subtask is provided, followed by a discussion of the technical approach and the BOE for the Level of Effort (LOE) and Other Direct Costs (ODC), organized by P-T levels.

Budgets for this **Revised** Work Plan are contained in Sections 7.0 and 8.0. Section 7.0 spreadsheets display proposed LOE and Dollar costs forecasted from July 24, 2003 through September 30, 2005, organized by EPA-defined tasks and subtasks. Spreadsheets in Section 8.0 provide a detailed breakdown of the proposed LOE and Dollar costs forecasted for each EPA-defined task and subtask.

The following is a list of labor abbreviations and acronyms that may be used in this **Revised** Work Plan:

AA	Administrative Assistant
ED	Editor
EN	Engineer
ES	Environmental Scientist
GIS	GIS Analyst
GR	Graphics Technician
HY	Hydrogeologist
KA	Contract Administrator
PA	Project Accountant
PL	Planner
PM	Program Manager
SM	Site Manager
TE	Technician
TR	Technical Reviewer
WP	Word Processor

Task 1—Project Planning and Support (PP)

The purpose of the task is to set forth the requirements for project planning and project management. In accordance with the SOW, all costs for this task will be tracked and reported on the subtask level. The task includes three subtasks:

- Subtask 1.01–Project Planning
- Subtask 1.02–Develop and Submit Work Plan
- Subtask 1.03–Project Management

Subtask 1.01—Project Planning (PP.01)

Technical Approach

This subtask includes attending a scoping meeting, reviewing and commenting on the scope of field activities, reviewing PRP plans and documents, and preparing and/or updating site-specific plans required for CH2M HILL work on-site.

Scoping Meeting. CH2M HILL will attend a scoping meeting via telephone. Prior to the scoping meeting, CH2M HILL will provide a list of key CH2M HILL personnel, including current resumes, providing support on the WA.

Scope of Field Activities and Cost Estimates. Budget estimate for this activity is included in subtask 13.01.

Site-Specific Plans. CH2M HILL will review all pertinent, existing site-specific plans prepared by the previous technical contractor, Weston. Since the RI/FS effort has not been initiated at the site, CH2M HILL assumes that all of the following documents will be prepared for implementation of the RI/FS:

- Health & Safety Plan (HASP)
- Field Sampling Plan (FSP)
- Quality Assurance Project Plan (QAPP)

Subcontractor plans and procedures will be incorporated into the overall site plans. As necessary, CH2M HILL will update and maintain the documents to ensure that the plans are current. For budgeting, it is assumed that draft and final HASP, FSP, and QAPP will be prepared.

Basis of Estimate

CH2M HILL will provide comments within 14 days of receipt of plan(s) from the PRP (or from EPA if documents were submitted prior to this WA). CH2M HILL recognizes that we may request a longer review period for the On-site Soils RI/FS Work Plan and the RI/FS Report.

Personnel and ODCs involved are:

Scoping Meeting		
P-4 (PM)	4 hours	Review SOW, prepare for and attend scoping meeting
P-3 (HY)	6 hours	Review SOW, prepare for and attend scoping meeting
P-3 (KA)	4 hours	Review SOW, prepare for and attend scoping meeting
Site-Specific Plans		
P-3 (SM)	12 hours	Technical Planning Meetings (assume 6 meetings/2 hours each)
P-3 (HY)	12 hours	Technical Planning Meetings (assume 6 meetings/2 hours each)
P-2 (EN)	12 hours	Technical Planning Meetings (assume 6 meetings/2 hours each)

P-3 (CH)	12 hours	Technical Planning Meetings (assume 6 meetings/2 hours each)
P-3 (SM)	80 hours	SM review of draft and final plans, coordination with EPA
P-3 (RA)	12 hours	Preparation of FSP and QAPP
P-3 (HY)	96 hours	Prepare FSP (80 hours draft, 16 hours final)
P-2 (HY)	128 hours	Prepare FSP (64 hours draft, 24 hours final) and HASP (24 hours), assist preparation of QAPP (16 hours)
P-2 (HY)	**60 hours**	**Prepare map and other data for import**
P-3 (CH)	120 hours	Prepare QAPP (80 hours draft, 40 hours final)
P-4 (GIS)	**8 hours**	**Import map data**
P-3 (GIS)	96 hours	Prepare maps (12 maps, 8 hours each)
T-2 (GR)	28 hours	Prepare graphics, diagrams (12 documents, 2 hours each draft, 4 hours final)
P-4 (HY)	44 hours	Senior review
P-1 (ES)	**130 hours**	**Assist preparation of FSP (40 hours draft, 20 hours final), QAPP (40 hours draft, 20 hours final), and map data import (10 hours)**
P-1 (ED)	240 hours	Text editing (12 documents, 16 hours each draft, 4 hours each final)
T-0 (AA)	72 hours	Administrative assistance, reproduction, shipping (12 documents, 6 hours each)
Reproduction		Assume 2,000-page copies

A summary of the forecasted labor for Subtask 1.01 is presented in Table 3-1.

TABLE 3-1
Labor Forecast
Subtask 1.01—Project Planning (PP.01)
Omega Chemical OU-2 - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Scoping Meeting	4	10						*14*
Site-Specific Plans	52	440	200	370	28		72	*1,162*
Total	*56*	*450*	*200*	*370*	*28*		*72*	*1,176*

Subtask 1.02—Develop and Submit Work Plan (PP.02)

Technical Approach

This subtask includes developing a Work Plan, and preparing a Revised Work Plan based on EPA comments and negotiations.

Develop the Work Plan. CH2M HILL will prepare and submit the WA Work Plan that will include a comprehensive description of the additional data collection and evaluation of activities to be performed, if any, and the plans and specifications to be prepared. The Work plan will be developed in conjunction with the Sampling and Analysis Plan (SAP) and Health & Safety Plan (HASP), although each plan will be delivered under separate cover and budgeted with the task it benefits.

The Work Plan will be prepared in accordance with the RAC IX Work Plan format.

Work Plan Meetings and Site Visit. CH2M HILL will have a meeting with the previous technical support contractor, Weston, to become familiar with the technical work completed to date and to understand unique challenges at the site.

CH2M HILL will contact the WAM to schedule a meeting with EPA personnel 20 to 30 calendar days after the initial scoping meeting to discuss and clarify any issues CH2M HILL may have regarding this project. This meeting will be requested at least five working days before the proposed meeting date.

CH2M HILL will conduct a site visit with the WAM during the RI/FS planning phase to assist in developing an understanding of the site and any project logistics. In addition, CH2M HILL will meet with the previous technical support contractor (Weston) to become familiar with active and ongoing tasks.

Prepare Revised RI/FS Work Plan. CH2M HILL will participate in a Work Plan negotiation by conference call, as determined by the EPA Contracting Officer (CO) in consultation with the EPA WAM and Project Officer (PO).

CH2M HILL shall make revisions to the Work Plan as a result of EPA's comments and/or negotiation agreements.

Basis of Estimate

Develop RI/FS Work Plan. CH2M HILL will prepare and submit the Work Plan as specified in SOW Rev. 02. The original Work Plan will be submitted to the EPA CO and one copy each will be submitted to the EPA PO and WAM.

Personnel and ODCs involved are:

P-4 (PM)	4 hours	Review Work Plan
P-3 (SM)	24 hours	Prepare Work Plan, coordinate with EPA WAM
P-3 (HY)	6 hours	Assist in Work Plan preparation
P-3 (KA)	12 hours	Finalize text and cost tables in Work Plan
P-2 (HY)	27 hours	Prepare Work Plan
T-0 (AA)	12 hours	Format Work Plan and clerical support
Reproduction		Copy Work Plan (5 copies, 50 pages per copy)
Postage		Mail documents to EPA (assume $12 per copy, 3 copies to EPA)

Meetings. The estimated LOE for this task is based on the SM attending one 4-hour meeting with the previous contractor via teleconference; one 4-hour meeting with the EPA WAM via teleconference; and one 8-hour site visit by the PM and SM.

Personnel and ODCs involved are:

P-4 (PM)	8 hours	Site visit
P-3 (SM)	16 hours	Attend 3 meetings (two 4-hour teleconferences, one 8-hour site visit)
Travel		See Table 8-3

Prepare Revised RI/FS Work Plan (if necessary). The estimated LOE for this task is based on the PM and SM attending one 3-hour negotiation meeting and revising the Work Plan based on this negotiation.

Personnel and ODCs involved are:

Attend Negotiation

P-4 (PM)	3 hours	Attend negotiation meeting
P-3 (SM)	3 hours	Attend negotiation meeting
P-3 (KA)	3 hours	Attend negotiation meeting

Prepare Revised Work Plan

P-4 (PM)	2 hours	Review Revised Work Plan
P-3 (SM)	16 hours	Prepare Revised Work Plan
P-3 (PL)	6 hours	Prepare Revised Work Plan
P-3 (KA)	4 hours	Revise text and cost tables
P-2 (HY)	16 hours	Prepare Revised Work Plan
T-0 (AA)	6 hours	Format Revised Work Plan and clerical support
Reproduction		Copy Work Plan (5 copies, 50 pages per copy)
Postage		Mail documents to EPA (assume $12/copy, 3 copies to EPA)

A summary of the forecasted labor for Subtask 1.02 is presented in Table 3-2.

TABLE 3-2
Labor Forecast
Subtask 1.02—Develop and Submit Work Plan (PP.02)
Omega Chemical OU-2 - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Develop Work Plan	4	42	27				12	*85*
Attend Meetings	8	16						*24*
Negotiate/Revise Work Plan	5	32	16				6	*59*
Total	*17*	*90*	*43*				*18*	*168*

Subtask 1.03—Project Management (PP.03)

Technical Approach

Monthly Progress Reports and Reporting. CH2M HILL will prepare Monthly Progress Reports in accordance with subject contract (Attachment B to Contract 68-W-98-225) and will document the status of each task and report costs and level of effort (by P-level) expended to date.

Meetings. SM will attend one project meeting and will prepare documentation of meetings as requested by the EPA WAM in writing. SM will meet with or call the WAM by telephone at least on a monthly basis to report project status.

Project Management and Coordination. SM will provide internal project management and coordination with CH2M HILL Project Staff.

Basis of Estimate

The LOE estimated below is based on the experience of the PM and SMs on other RAC IX projects. The SM will meet with the EPA WAM via telephone on a weekly basis and routinely communicate via e-mail and phone.

Personnel and ODCs involved over the period of performance (26 months) are:

Monthly Progress Reports and Reporting

P-3 (SM)	156 hours	Monthly progress report (2 hours per month), invoices (2 hours per month), track budget (2 hours per month)
T-0 (PA)	104 hours	Generate MSR cost reports (2 hours per month), prepare invoices (2 hours per month)
T-0 (AA)	104 hours	Project filing and project support, assist MSR preparation (4 hours per month)

Meetings

P-3 (SM)	296 hours	Routine communication with WAM (7 hours per month), weekly teleconference (1 hour per week), one project meeting at EPA (10 hours)
Travel		See Table 8-3

Project Management and Coordination

P-3 (SM)	208 hours	Coordinate with project staff (8 hours per month)

A summary of the forecasted labor for Subtask 1.03 is presented in Table 3-3.

TABLE 3-3
Labor Forecast
Subtask 1.03—Project Management (PP.03)
Omega Chemical OU-2 - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Monthly Reporting and Filing		156					208	*364*
Meetings		296						*296*
Project Management and Coordination		208						*208*
Total		*660*					*208*	*868*

Task 2—Community Relations (CR)

Subtask 2.01—Community Relations (CR.01)

CH2M HILL will provide community relations support to EPA under WAs 174 & 175. Because activities under both WAs will occur concurrently, CH2M HILL's efforts **for selected tasks** will be divided equally between WAs 174 & 175, as directed by EPA. The estimate below is given for the entire effort; Table 3-4 shows one half of the LOE that will be applied to this WA **for tasks that will be split between WAs 174 & 175.**

CH2M HILL will assist EPA with community relations activities in accordance with the Superfund Community Involvement Handbook, April 2002. Work under this task will be coordinated with RI/FS activities and, as directed by the EPA WAM, with EPA's Community Involvement Coordinator (CIC), the State of California Regional Water Quality Control Board, and the City of Whittier.

CH2M HILL staff involved in these activities include the Community Relations Specialist (CR), the Site Manager (SM), a Community Relations Planner (PL), Graphics staff (GR), Editing staff (ED), and the Project Administrative Assistant (AA). Additional senior and technical review may be provided by the Hydrogeologist (HY) and Project Engineer (EN).

Technical Approach

Community Involvement Plan. CH2M HILL will assist EPA in preparing a Community Involvement Plan (CIP) for the Site. Under the direction of the EPA WAM, CH2M HILL will:

- Research community history, demographics and characteristics.
- Draft interview questions.
- Identify individuals and organizations to be interviewed. Arrange, schedule and assist in conducting up to 25 interviews.
- Summarize interview key findings and incorporate into the CIP.
- Draft, format, and layout CIP.

- Coordinate EPA review of draft CIP and incorporate comments and edits into final draft.
- Produce and distribute final CIP(s).

Fact Sheets. CH2M HILL will **translate into Spanish** up to three (3) fact sheets that will inform the public about activities related to the Omega site including but not limited to: well installation field work, risk assessments, the Proposed Plan, and the RI/FS. Fact sheet preparation may include the following:

- Translate the final fact sheet copy into Spanish.

CH2M HILL will provide EPA with electronic copies (Corel WordPerfect) of the Spanish language translation. Any graphics will be provided in the format requested by EPA.

Public Notification of Field Work. CH2M HILL will assist EPA to notify residents of well installation activity in 6 residential neighborhoods. CH2M HILL will:

- Produce a flyer detailing field work in English and Spanish to be distributed door-to-door.
- Canvass each neighborhood a second time prior to overnight well installation activities to provide written notification of potential 24-hour noise impacts.

Public Meeting Support. CH2M HILL will support and assist EPA in up to three (3) public hearings, meetings and/or open houses. Support may include the following, as directed by the EPA WAM:

- Research facilities to accommodate up to 250 people, evening times available, costs associated, issues that might arise, and discuss findings with EPA.
- Secure the location, facilities, transportation and other services for the event.
- Coordinate logistical details of the events, including providing any needed audio/visual equipment, easels, and sign-in sheets.
- Secure and provide translation services and a certified court recorder if necessary.
- Provide graphics support to create a PowerPoint presentation and up to three (3) poster boards per meeting.
- Translate poster boards into Spanish.
- Draft a two-page handout, coordinate two rounds of EPA review, desktop publish, and make copies of the handout for each of the three public meetings.
- Translate handouts into Spanish.
- Support meeting with up to three (3) key technical staff including a toxicologist, hydrogeologist, modeling expert, chemist, and industrial/chemical engineer as requested.
- **Provide court reporter and transcript for the Proposed Plan meeting.**
- Other tasks as necessary as directed by the EPA WAM to ensure that the meeting is successful.

Maintain Information Repository and Provide Other Community Involvement Support. CH2M HILL will assist EPA to maintain the information repository located at the Whittier Public Library.

- Assist EPA in maintaining the information repository at the Whittier Public Library, by conducting an inventory of repository contents, reproducing and replenishing missing materials, transporting materials to the library, mailing new materials as necessary, and coordinating with library staff and EPA.
- Administrative support, as needed, for miscellaneous community relations tasks as requested by EPA's WAM or CH2M HILL's SM and CR.

Proposed Plan Support. CH2M HILL will assist EPA to prepare a Proposed Plan after the RI/FS and before the Draft ROD. The plan will present the preferred alternative and other alternatives evaluated and considered. The Proposed Plan will follow "A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents", EPA July 1999. Under the direction of the EPA WAM, CH2M HILL will:

- Prepare draft Proposed Plan and coordinate EPA review.
- Incorporate edits and produce final Proposed Plan. Submit to EPA in Corel WordPerfect format.
- Prepare draft public notice of Availability of Proposed Plan and Public Meeting, conduct one EPA review, and publish final public notice in a local newspaper such as the Whittier Daily Review.

Responsiveness Summary Support. CH2M HILL will assist EPA to prepare a responsiveness summary to comments received during the Proposed Plan public comment period. Responses to oral and written public comments will be prepared.

- Prepare draft Responsiveness Summary for up to 200 comments and coordinate EPA review.
- Incorporate edits and produce final Responsiveness Summary. Submit to EPA in Corel WordPerfect format.

Basis of Estimate

Community Involvement Plan. The LOE presented below is based on conversations between the EPA CIC and the CR, as well as discussions with personnel having performed previous work under the RAC IX contract.

It is assumed this activity will be performed by CH2M HILL with support from EPA. The estimates below assume up to 25 interviews of key community leaders by one CH2M HILL staff member (CR) in concert with EPA's RPM and/or CIC. Developing initial list of potential interviewees and scheduling interviews is estimated to take 30 hours (PL). Interviews will be scheduled together, whenever possible, to reduce travel time. No more than 8 trips to the site and neighboring area for interviews is assumed at 2 hours travel round-trip per visit. Each interview is expected to take no more than 2 hours plus 1 hour of follow-up time for debriefing and summarizing information for up to 25 interviews. No more than 2 rounds of review by EPA are assumed. Revisions will take up to 50 hours (18 CR and 32 PL). Most figures and graphics will already be created and will be provided

by EPA. Creation of 3 new figures or graphics and a cover page is assumed at 4 hours each, for a total of 12 hours. EPA revisions to graphics are expected to be minimal, requiring no more than 4 hours for all graphics to complete. A CIP of thirty pages including appendices, figures, and maps is assumed for reproduction purposes. No more than 30 final English copies (all 30 pages or less) are assumed. Spanish translation will be provided at the request of the EPA WAM.

Personnel and ODCs involved are:

P-3 (SM)	16 hours	12 hours for providing site information-related CIP input, 4 hours for senior review of CIP
P-3 (SM)	4 hours	Technical Planning Meetings (assume 2 meetings/2 hours per meeting)
P-3 (CR)	144 hours	14 hours for initial coordination with EPA regarding CIP; 5 hours for supervision and review of research; 66 hours for conducting interviews; 25 hours for summarizing interview results; 16 hours for preparation and review of CIP; 18 hours for coordinating EPA review and incorporating comments
P-3 (CR)	4 hours	Technical Planning Meetings (assume 2 meetings/2 hours per meeting)
P-2 (PL)	102 hours	16 hours for researching community background, demographics, and history; 30 hours for developing list of interviewees and scheduling interviews; 24 hours for preparation of CIP; 32 hours for revisions
P-2 (PL)	4 hours	Technical Planning Conference Calls/Meetings (assume 2 meetings/2 hours per meeting)
T-2 (GR)	16 hours	16 hours for preparation and revision of graphics for CIP
P-1 (ED)	8 hours	Format, edit, and make revisions to CIP
T-0 (AA)	30 hours	10 hours administrative support for interview scheduling and summarization; 4 hours for CIP reproduction, 16 hours for communication and meeting support
Translation (optional)		$2,970 (23 pages text x 400 words/page x $0.30/word plus 7 pages graphics x 100 words/page x $0.30/word)
Reproduction		30 pages x 30 copies; 30 color cover pages; 30 color figures **($200 total)**
Postage		Mail to EPA (5 copies) and 25 community groups or **individuals ($140 total)**
Travel		See Table 8-3

Fact Sheets. **The cost for this task will be equally divided between WAs 175 & 174.** The LOE for this subtask is based on the CR's professional judgement and on estimates for providing similar services under the RAC IX contract. This estimate assumes that EPA will

provide CH2M HILL with the final copy for Spanish translation. **CH2M HILL will then return the translated copy to EPA via e-mail.**

The estimate below includes 16 hours for translating **each fact sheet** into Spanish.

Personnel and ODCs involved are:

P-3 (SM)	10 hours	Senior review of fact sheets (2 hours x 5 fact sheets)
P-2 (PL)	80 hours	Translate into Spanish (16 hours x 5 fact sheets)

Public Notification of Field Work. The LOE for this subtask is based on the CR's professional judgement and on estimates for providing similar services under the RAC IX contract. This estimate assumes that CH2M HILL will assist the EPA in door-to-door notification of field work in six residential neighborhoods. CH2M HILL will produce a flyer in English and Spanish detailing field work to be distributed with a fact sheet. Prior to overnight field work, CH2M HILL will canvass the neighborhood a second time to provide written notification of potential 24-hour noise impacts.

The estimate below includes 12 site visits (6 sites x 2 visits), drafting initial flyer and noise impact notification text (including one round of EPA review), Spanish translation, layout, and senior review. After creation of initial flyer, the 5 flyer and 5 notification updates to make the information site specific, will require modification translation, senior review, and layout (including map updating). Each of the 12 visits includes administrative support for coordination and copying materials.

Personnel and ODCs involved are:

P-3 (SM)	12 hours	Senior review (1 hour x 12 flyers/notifications)
P-3 (CR)	20 hours	Prepare initial flyer and notification (20 hours x 1 flyer/ notification)
P-3 (CR)	30 hours	Revise flyer and notification (6 hours x 5 flyers/ notifications)
P-3 (CR)	96 hours	Door-to-door canvassing (8 hours x 12 visits)
P-2 (PL)	26 hours	Prepare initial flyer and notification including Spanish translation (26 hours x 1 flyer/notification)
P-2 (PL)	20 hours	Revise flyer and notification including Spanish translation (4 hours x 5 flyers/notifications)
P-2 (PL)	96 hours	Door-to-door canvassing (8 hours x 12 visits)
T-2 (GR)	8 hours	(Layout initial flyer and notification 8 hours x 1 flyer/ notification)
T-2 (GR)	30 hours	Revise flyer and notification layout and update map (6 hours x 5 flyers/notifications)
T-0 (AA)	48 hours	Administrative support (4 hours x 12 visits)
Reproduction		$2,400 ($200 for flyers/notifications x 12 visits)
Travel		See Table 8-3

Public Meetings Support. **The cost for this task will be equally divided between WAs 175 & 174.** The estimated LOE is based on previous work performed under the RAC IX contract, as well as on prior experience of the CR.

The estimate includes three meetings with EPA staff to plan, practice, and de-brief each public meeting for two CH2M HILL staff (SM and CR).

This estimate assumes no more than 3 posters per meeting, and translation of all 3 posters into Spanish. Graphics needs are assumed to be 10 hours per poster per meeting for English and Spanish posters (6 posters) including incorporating two rounds of EPA revisions. A maximum of 3 hours oral translation will be needed per public meeting. **A court reporter and meeting transcript will be provided for the Proposed plan meeting.**

Personnel and ODCs involved are:

P-3 (SM)	6 hours	Meet with EPA regarding public meetings (3 hours x 2 meetings)
P-3 (SM)	18 hours	Attend public meeting/open house (9 hours x 2 meetings)
P-3 (SM)	10 hours	Provide senior review of posters and meeting information (5 hours x 2 meetings)
P-3 (HY)	10 hours	Provide technical review of posters, meeting information, talking points (5 hours x 2 meetings)
P-3 (HY)	18 hours	Attend public meeting/open house (9 hours x 2 meetings)
P-4 (RA)	18 hours	Attend public meeting/open house (9 hours x 2 meetings)
P-3 (CR)	6 hours	Meet with EPA regarding public meetings (3 hours x 2 meetings)
P-3 (CR)	18 hours	Attend public meeting/open house (9 hours x 2 meetings)
P-3 (CR)	80 hours	Supervise arrangements of all logistics, revise posters, supervise revisions of posters, creation of briefing packets, develop public notice, coordination with EPA staff ([10 hours/wk x 4 weeks] x 2 meetings)
P-3 (CR)	40 hours	Draft handout, coordinate one EPA review and finalize handout (20 hours x 2 meetings)
P-2 (PL)	18 hours	Attend public meeting/open house (9 hours x 2 meetings)
P-2 (PL)	120 hours	Make arrangements for meeting logistics, coordinate graphics creation of posters, draft new text for posters, coordinate revisions, coordinate publication of public notice (10 hours/wk x 6 weeks x 2 meetings)
P-2 (PL)	18 hours	Translate posters into Spanish (3 hours x 3 posters x 2 meetings)
P-2 (PL)	32 hours	Review and translate handout (16 hours x 2 meetings)

T-2 (GR)	**120** hours	Create graphics, layout posters, make revisions (10 hours x 6 posters x **2** meetings)
T-0 (AA)	**40** hours	Administrative support for meetings, reproduction coordination of meeting materials, briefing packets and mailings (20 hours x **2** meetings)
Translation		Oral translation: 4 hours x $150/hr x **2** meetings = **$1,200**
Court Reporter		**$550**
Miscellaneous Meeting Supplies		$350 x **2** meetings = **$700**
Reproduction		$400 ($200 for handouts and sign-in sheets x 2 meetings)
Poster Mounting		$600 (6 posters x **2** meetings x $50)
Travel		See Table 8-3

Maintain Information Repository and Provide Other Community Involvement Support. It is assumed that repository visits will be made semi-annually for 2 years for a total of 4 visits at 2 hours travel time, 5 hours inventory and review time, 2 hours follow-up and 2 hours coordination of reproduction of missing materials. No more than 2 missing reports will be discovered. EPA will maintain the site mailing list and develop and produce all public notices.

Personnel and ODCs involved are:

P-3 (CR)	48 hours	Technical support to EPA in responding to public inquiries (2 hours per month x 24 months)
P-3 (CR)	48 hours	Planning and reporting on community relations activities (24 hours per year x 2 years)
P-3 (CR)	44 hours	Repository visits, inventory, replacing missing documents, revising lists (11 hours x 4 visits)
T-0 (AA)	48 hours	Administrative support for general community relations activities, additional requests by EPA WAM (2 hours x 24 months)

Proposed Plan Support. **The cost for this task will be equally divided between WAs 175 & 174.** It is assumed that the Proposed Plan will be no longer than 12 pages in length, will contain no more than 3 new graphics, and will require two EPA reviews. The final Proposed Plan will be submitted to EPA in Corel WordPerfect format.

Prepare draft public notice of Availability of Proposed Plan and Public Meeting, conduct one EPA review, and publish final public notice in a local newspaper such as the Whittier Daily Review.

Personnel and ODCs involved are:

P-3 (SM)	12 hours	Senior input and review of Proposed Plan
P-3 (CR)	40 hours	Prepare draft Proposed Plan

P-2 (PL)	20 hours	Prepare draft Proposed Plan, and coordinate publication of public notice
P-2 (PL)	24 hours	Translate final Plan into Spanish
T-2 (GR)	32 hours.	Create three graphics, Plan layout, and incorporate revisions
T-2 (GR)	8 hours.	Create public notice layout, make revisions
T-0 (AA)	20 hours	Administrative support

Responsiveness Summary Support. **The cost for this task will be equally divided between WA 175 and WA 174.** It is assumed that the responsiveness summary to comments received during the Proposed Plan public comment period will include responses for up to 200 comments. The document will require one EPA review, and the final will be delivered to EPA in Corel WordPerfect format

Personnel and ODCs involved are:

P-3 (SM)	50 hours	Senior input and review of Summary
P-3 (CR)	50 hours	Prepare draft Summary
P-3 (CR)	40 hours	Coordinate EPA review and revise Summary
P-3 (HY)	50 hours	Prepare draft Summary
P-2 (PL)	50 hours	Prepare draft Summary
P-2 (PL)	200 hours	Translate final Summary into Spanish
T-0 (AA)	12 hours	Administrative support

A summary of the forecasted labor for Subtask 2.01 is presented in Table 3-4.

TABLE 3-4
Labor Forecast
Subtask 2.01—Community Relations Support (CR.01)
Omega Chemical OU-2 – RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Community Involvement Plan		*168*	*106*	*8*	*16*		*30*	*328*
Fact Sheet **Translation (one half of total)**		*5*	*40*					*45*
Public Notification of Field Work		*158*	*142*		*38*		*48*	*386*
Public Meetings Support **(one half of total)**	*9*	*103*	*94*		*60*		*20*	*286*
Information Repository and Other		*140*					*48*	*188*
Proposed Plan **(one half of total)**		*26*	*22*		*20*		*10*	*78*
Responsiveness Summary **(one half of total)**		*95*	*125*				*6*	*226*
Total	*9*	*695*	*529*	*8*	*134*		*162*	*1,537*

Total Expenses for WA 175 are (see Table 8-2 for details):

Subcontracts	
Court Reporter/ Transcript (one half of total)	$275
Oral Translation (one half of total)	$600
Translation	$2,970
Other Direct Expenses	
Reproduction	$2,800
Postage	$140
Posture Mounting (one half of total)	$300
Supplies (one half of total)	$350

Task 3—Field Investigation (FI)

Subtask 3.01—Field Investigation (FI.01)

Technical Approach

CH2M HILL will implement or oversee, depending on the level of PRP involvement, the field activities previously determined. During oversight activities, CH2M HILL will collect duplicate/split environmental samples and information required in support of the RI/FS.

For the purpose of preparing work plan costs, it is assumed that CH2M HILL will perform the following scope of work.

Data Acquisition. Data Acquisition will begin with EPA's approval of the Field Sampling Plan (FSP). CH2M HILL will perform the following activities under this subtask:

- Identification, procurement, and management of subcontractors.
- Site reconnaissance.
- Soil and soil vapor testing.
- Groundwater monitoring and sampling.
- Aquifer testing.

Identification, Procurement, and Management of Subcontractors. Subcontractor services anticipated to be required for this period of performance include the following:

- Direct-push soil gas sampling.
- Pump installation for aquifer testing.
- Utility clearance.
- Surveying of new sample locations.
- Waste transportation and disposal.

For the purpose of preparing work plan costs, it is further assumed PRPs will perform the following scope under this WA:

- **Drilling and well installation.**
- **Initial round of groundwater sampling of new wells.**

CH2M HILL will perform the following oversight activities under this subtask:

- **Review of PRP's planning documents.**
- **Field oversight of drilling and well installation.**
- **Field oversight of initial round of groundwater sampling of new wells.**

For costing purposes, it is assumed that EPA Region 9 CLP Laboratories will be used for 75 percent and EPA-approved laboratories for 25 percent of all fixed and mobile laboratory analytical services. The QA/QC program of the selected laboratory subcontractor will be reviewed and audited, if necessary, during this period of performance.

CH2M HILL will issue a work order/SOW for each subcontractor service. The Contracts Administrator (KA) will manage the contractual and administrative performance of subcontractors; technical direction will be provided by the project team.

Site Reconnaissance. CH2M HILL will perform a reconnaissance of the site, including the nearby residences, to determine the proposed sampling locations for the RI investigation. This reconnaissance will be performed with the EPA WAM and may involve talking with the occupants of the residences.

Oversight for Drilling and Well Installation. The anticipated drilling and well installation will include:

- Obtaining well permits.
- Utility clearance.
- Installing monitoring well clusters and one extraction well.
- Well development.
- Installing dedicated groundwater sampling equipment in new monitoring wells.
- IDW management and disposal.
- Surveying of new sample locations.

Pursuant to section 121(e) of ("CERCLA" or "Superfund"), 42 U.S.C. § 9421(e), §300.400(e)(1) of the National Contingency Plan (NCP), EPA is not required to obtain federal, state or local permits to perform on-site hazardous substance response activities, including the installation and operation of groundwater monitoring and extraction wells. However, CH2M HILL intends to meet and provide for the substantive requirements of local regulations and permits. This includes notification of field activities to local, county, and state authorities, as appropriate, and filing of documents such as SOWs and traffic control plans in support of various permits. Permit fees are not payable by the EPA or its contractor.

Prior to and upon the end of each phase of work, mobilization and demobilization activities will be performed. Mobilization activities will consist of pre-field planning, scheduling of field personnel, ordering equipment and laboratory sample containers, and making arrangements for IDW storage. Scheduling, notification and access permission with property owners and residents will be coordinated by/through EPA prior to field work.

Local neighborhood residential notification of field work activities is included in Task 2. Post-field demobilization activities include removal of all sampling equipment and IDW associated with the field activity.

Soil and Soil Gas Investigation. The soil investigation will include the following activities:

- Collecting soil-gas samples using direct-push technology.
- Field analysis of soil-gas samples using a mobile laboratory or a portable GC/MS unit.
- Collection of soil samples from soil borings.

The soil and soil-gas samples collected will be managed according to sample preservation, identification, documentation, chain-of-custody, and shipping procedures to be described in the SAP.

Groundwater Monitoring. Quarterly and semi-annual groundwater sampling will be performed for a period of two years. The groundwater samples collected will be managed according to sample preservation, identification, documentation, chain-of-custody, and shipping procedures to be described in the SAP.

Aquifer Testing. The aquifer testing program will include:

- Slug tests on existing and new monitoring wells.
- Three-day constant rate pumping tests on Santa Fe Springs Well No. 1 and a new extraction well to be installed at MW-1 well cluster. Both tests will use multiple observation wells and include pre- and post-test monitoring and step-drawdown tests.
- Short-term pumping tests at one three-well cluster.
- The collected data will be analyzed using established aquifer test analysis methods and the results summarized in a technical memorandum.

Basis of Estimate

For the purpose of preparing costs, CH2M HILL assumes that no PRP oversight will be conducted as part of this WA. All costs assume that work can be performed in Level D personal protective equipment, or below. If Level C is necessary, costs will increase.

Identification, Procurement, and Management of Subcontractors. The estimated LOE for this subtask is based on prior procurement activities for RAC IX projects.

Personnel and ODCs involved in subcontract procurement and management are:

P-3 (SM)	24 hours	Coordination and review of subcontract documents and bid evaluations
P-3 (KA)	96 hours	24 hours per subcontract x a minimum of 6 subcontractors for subcontract procurement, management, and administration (preparation of subcontract bid packages, purchase requisitions, contracts award, invoicing)
P-3 (HY)	64 hours	16 hours per subcontract x a minimum of 6 subcontractors for subcontract SOW preparation and review and technical support/direction

T-0 (AA)	**16** hours	4 hours per subcontract x a minimum of 6 subcontractors for word processing, administration

Site Reconnaissance. It is assumed that the site reconnaissance to determine proposed sampling locations will be conducted by the Project Hydrogeologist (HY) and the Field Team Leader (FTL).

Personnel and ODCs involved are:

P-3 (SM)	**12** hours	Coordination with EPA, oversight, site reconnaissance
P-3 (HY)	**12** hours	Site reconnaissance
P-2 (ES)	8 hours	Support
Travel		See Table 8-3

Oversight for Drilling and Well Installation. Three-well clusters will be installed at 11 new groundwater monitoring locations using hollow-stem auger, air-rotary, and mud drilling methods. One extraction well will be installed. The well depths will range between approximately 70 and 200 feet. The wells will be constructed using PVC screen and casing. A groundwater sample will be collected from each new well following development and sampling pump installation.

This task will likely consist of two phases of field work. It is assumed that the majority of field **oversight** activities can be conducted by one CH2M HILL personnel acting to oversee the **PRPs. CH2M HILL will be present during the most critical drilling and well installation activities. CH2M HILL will collect split samples from six new wells; the oversight for groundwater sampling will be limited to the six locations (to be determined later).**

Personnel and ODCs involved are:

P-3 (SM)	**16** hours	Site access, coordination with EPA
P-4 (HY)	**2** hours	Sr. Hydrogeologist – technical direction
P-3 (HY)	**36** hours	**Travel to the site (2 hours per site visit, 4 visits), oversight of well installation (7 hours each site visit x 4 visits)**
P-2 (HY)	**40** hours	Obtain well permits (40 hours)
P-2 (HY)	**1,068** hours	Travel to the site (2 hours per day, **108** days), oversight of **well installation (three 8-hour days per well, 34 wells) and initial groundwater sampling** (approximately 6 hours per well, 6 wells, **one well per day**)
T-0 (AA)	**8** hours	Clerical and administrative support
Well Permit Fee		No charge
Field Supplies (consumables)		Allowance of **$10**/day x **108** days; total **$1,080**
Travel		See Table 8-3

Soil Investigation and Soil Gas Sampling. The LOE for this task is based on:

- Collection of soil samples from hollow stem auger borings.
- Soil-gas surveys will be performed using direct-push technology at six potential source areas.

The soil and soil-gas samples collected will be managed according to sample preservation, identification, documentation, chain-of-custody, and shipping procedures to be described in the SAP. It is assumed that the majority of field activities can be conducted by one CH2M HILL personnel working with the appropriate subcontractor.

The LOE for the soil investigation is based on CH2M HILL's previous experience on similar projects. It is assumed that the effort will be completed with one mobilization.

Personnel and ODCs for the soil investigation are:

P-3 (SM)	12 hours	Guidance and coordination with EPA
P-4 (HY)	8 hours	Sr. Hydrogeologist - Technical direction and review
P-2 (EN)	72 hours	Field Engineer - oversight of drilling subcontractor, sample packaging (12 hours per site)
T-0 (AA)	16 hours	Administrative support
T-2 (TE)	24 hours	Field Technician – field assistance, sample shipping
Utility Clearance		$3,000
Subcontract drilling		Rig mobilization $2,000, 6 borings 70 feet deep; $3,500/boring; soil disposal $4,000; total $27,000
Survey		$8,000
Sample Shipping		$700
Supplies		Allowance of $149/day; 7 days; total $1,043
Travel		See Table 8-3

Personnel and ODCs for the soil gas sampling are:

P-3 (SM)	24 hours	Site access, coordination with EPA
P-4 (HY)	8 hours	Sr. Hydrogeologist – technical direction
P-3 (HY)	24 hours	Task Manager – field planning
P-2 (EN)	144 hours	Site management, oversight of subcontractor; 24 hours per area, 6 areas
T-2 (TE)	40 hours	Field Sampling Technician – site support, purchase supplies, sample shipping
T-0 (AA)	16 hours	Clerical and administrative support
Utility Clearance Subcontractor		$16,000

Soil Gas Sampling Subcontractor	$2,850/day, 12 days; total $34,200
Sample Shipping	$300
Survey	$4,000
Field Supplies (consumables)	Allowance of $149/day x 12 days; total $1,788
Traffic Control	Subcontract $500/day x 12 days; total $6,000
Travel	See Table 8-3

Groundwater Monitoring. Existing on-site wells are on a semi-annual monitoring schedule and existing off-site wells are on a quarterly monitoring schedule; new wells are assumed to be on a quarterly monitoring schedule. For budgeting purposes, 8 quarterly and 4 semi-annual groundwater monitoring events are assumed for this period of performance. Each event will involve a 3-person field team full-time. It is assumed that the timing of the semi-annual and quarterly schedules will coincide (the two sets of wells will be sampled consequently) and will require one mobilization of the field crew. **It is assumed that the newly installed wells will be sampled twice under this WA; the sampling event will take 5 days and will immediately follow the sampling of existing wells.**

DW management is based on the anticipated contaminant levels on site. Allowance for offsite treatment and disposal of purge water is included. Signing manifests for offsite disposal of purge water and/or free product will be the responsibility of EPA. The LOE for mobilization/demobilization for each event are included. Reporting requirements are described in Task 6.

Personnel and ODCs involved in the field activities are:

P-3 (SM)	32 hours	4 hours per event for site access and coordination with EPA
P-3 (HY)	64 hours	8 hours per event for technical direction and oversight
P-2 (HY)	64 hours	RI task manager – 8 hours for field planning/management per event
P-2 (HY)	32 hours	Sample Control Manager – 4 hours per event
P-2 (HY)	**1,000** hours	Field Team Leader – 16 hours for mobilization and 16 hours for IDW management per event (8 events); 12 hours/day for field work (8 x 5 days + 4 x 3 days + **2 x 5 days**)
P-2 (HY)	**744 hours**	**Field Team Member - 12 hours/day for field work (8 x 5 days + 4 x 3 days + 2 x 5 days)**
T-2 (TE)	**744** hours	Field Sampling Technician – 12 hours/day for field work (8 x 5 days + 4 x 3 days **+ 2 x 5 days**)
T-0 (AA)	32 hours	Clerical and Administrative Support – 4 hours per event
Field Equipment Rental		$1,000/event; $8,000 total

Field Supplies (consumables)	$1000/event; $8,000 total
Sample Shipping	Assume $200/day for FedEx shipping to the lab. Assume 62 days of sampling; total **$12,400**
Travel	See Table 8-3

Aquifer Testing. Slug testing will be performed on existing and new monitoring wells (total of 61 wells). Three-day constant rate pumping tests and step-drawdown tests will be performed on Santa Fe Springs Well No. 1 and a new extraction well to be installed at MW-1 well cluster. The estimated LOE for the aquifer testing is based on a two-person field crew. No water disposal is anticipated for the testing of Santa Fe Springs Well No. 1. The anticipated duration is 25 days for the slug testing and 25 days for the pumping tests.

Personnel and ODCs involved are:

P-3 (SM)	32 hours	Guidance and coordination with EPA, review memorandum
P-4 (HY)	16 hours	Senior technical review
P-3 (HY)	164 hours	60 hours for technical direction and oversight; 80 hours for test analysis; 24 hours to prepare technical memorandum
P-2 (HY)	64 hours	Prepare technical memo.
P-2 (HY)	616 hours	Field team leader – 16 hours for mobilization, 12 hours/day
T-2 (TE)	616 hours	Field team member – 16 hours for mobilization, 12 hours/day
P-2 (GR)	24 hours	Graphics support
T-0 (AA)	16 hours	Assembly and reproduction of technical memorandum
Equipment Rental	$23,300	Rental of data loggers, transducers, water level indicator
Supplies	$2,000	Rinse water, solid slugs, ropes, zip-ties
Subcontract	$84,600	Pump installation, water containment and disposal
Travel		See Table 8-3

Property Control. Property tracking and inventory control will be conducted throughout the period of performance for this WA. The estimated LOE required for this work is 1 hour per month for 26 months.

Personnel and ODCs are:

P-2 (KA)	26 hours	Property controls

A summary of the forecasted labor for Subtask 3.01 is presented in Table 3-5.

TABLE 3-5
Labor Forecast
Subtask 3.01—Field Investigation (FI.01)
Omega Chemical OU-2 - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Subcontractor Identification, Procurement, and Management		184					16	*200*
Site Reconnaissance		24	8					*32*
Well Installation Oversight	2	52	1,108				8	*1,170*
Soil Sampling	8	12	72		24		16	*132*
Soil Gas Sampling	8	48	144		40		16	*256*
Groundwater Monitoring		96	1,840		744		32	*2,712*
Aquifer Testing	16	196	704		616		16	*1,548*
Property Control			26					*26*
Total	*34*	*612*	*3,902*		1,424		*104*	*6,076*

Task 4—Sample Analysis (SN)

Subtask 4.01—Sample Analysis (SN.01)

Technical Approach

CH2M HILL will arrange for or conduct the appropriate combination of screening and contract laboratory program (CLP) type sample analyses of environmental samples collected during the previous task. Specific sample analyses included in this subtask are described in the Basis of Estimate.

Basis of Estimate

For budgeting purposes, it is assumed that 75 percent of all analytical services are provided by EPA CLP Laboratory, and 25 percent by a non-EPA Laboratory. All costs are estimated based on a fixed laboratory providing CLP-type analytical services. It is further assumed that the laboratory is EPA approved and has implemented the EPA Region 9 Laboratory QA Program.

The soil-gas analysis includes VOCs (EPA8260B).

The groundwater analysis includes VOCs (EPA8260B), hexavalent chromium (EPA 7196, 7196A, 7199), 1,4dioxane (EPA 8270C), dissolved and total metals (EPA 6010/7471), perchlorate (EPA 314.0), and total cyanide (EPA 335.2).

The soil analysis includes VOCs (EPA8260B), total metals (EPA 6010/7471), SVOCs (EPA 8270C), pesticides/PCBs (EPA 8081 A/8082), redox potential (Standard Method 2580B), organic carbon (SW-846 Method 9060 modified), ion exchange capacity (SW-846 Method 9081), moisture content (ASTM D-2216), and hydraulic conductivity (ASTM D-5084).

The analytical cost will increase if analysis for other compounds is required. Such compounds may include emerging new contaminants, or additional requirements for the analysis of groundwater samples based on the results of soil sample analysis.

It is assumed that there will be **eight routine** groundwater sampling events, one soil sampling event, and one soil-gas sampling event.

Personnel and ODCs involved are:

P-3 (SM)	**40** hours	Coordination with EPA (4 hours per event)
P-3 (CH)	**80** hours	Sr. Chemist - technical direction and oversight (8 hours/event)
P-2 (HY)	**80** hours	Task Manager – communication with laboratory (8 ours/event)
T-0 (AA)	**40** hours	Clerical and administrative support (4 hours/event)
Subcontract – Laboratory	$2,228	66 soil gas samples, $135/analysis; including 10% QC samples =$8,910 - 25% = 2,228
Subcontract – Laboratory	$11,809	47 soil samples, $1,005/analysis; including 10% QC samples Total = $47,235 - 25% = 11,809
Subcontract – Laboratory	**$40,052**	Groundwater analysis – 40 samples from 10 wells monitored semiannually, 204 samples from 51 wells (33 new and 18 existing) monitored quarterly; $589/analysis; Total **272** samples (including 10% QC samples) Total = **$160,208**; 25% = **$40,052**

A summary of the forecasted labor for Subtask 4.01 is presented in Table 3-6.

TABLE 3-6
Labor Forecast
Subtask 4.01—Sample Analysis (SN.01)
Omega Chemical OU-2 - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Sample Analysis		120	80				40	*240*
Total		*120*	*80*				*40*	*240*

Task 5—Analytical Support and Data Validation (AN)

Subtask 5.01—Analytical Support and Data Validation (AN.01)

Technical Approach

CH2M HILL will arrange for the validation of environmental samples collected during the previous task and will perform the necessary activities to ensure that adequate and definable sample management and techniques are implemented.

Basis of Estimate

This LOE consists of validating the analytical results and is based on prior experience of the senior chemist in performing data review and validation on numerous EPA projects in Region 9. It is assumed that 90% of the data will be validated at Level 2 and 10% at Level 3 per EPA Region 9 guidance.

The analytical support and data validation cost will increase if analysis for other compounds is required. Such compounds may include emerging new contaminants, or additional requirements for the analysis of groundwater samples based on the results of soil sample analysis.

It is assumed that there will be **eight routine** groundwater sampling events, one soil sampling event, and one soil-gas sampling event.

Personnel and ODC involved are:

P-3 (SM)	**40** hours	Coordination with EPA and scheduling (4 hours/event)
P-4 (TR)	**80** hours	Sr. Chemist – technical direction (8 hours/event)
P-3 (ES)	**369** hours	Project Chemist - data validation and report (**289** hours for validation, **80** hours for reports)
P-2 (HY)	110 hours	Project Hydrogeologist – coordination with Project Chemist and subcontract laboratory , assist with report preparation (10 hours/event)
T-0 (AA)	16 hours	Reproduction and mailing data validation report
Reproduction		Assume 3 copies to EPA, 2 copies to project team and file, 50 pages
Postage		3 copies to EPA, assume $12 per copy

A summary of the forecasted labor for Subtask 5.01 is presented in Table 3-7.

TABLE 3-7
Labor Forecast
Subtask 5.01—Analytical Support and Data Validation (AN.01)
Omega Chemical OU-2 - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Laboratory Data Validation	**80**	**409**	110				16	***615***
Total	***80***	***409***	*110*				*16*	***615***

Task 6—Data Evaluation (DE)

Subtask 6.01—Data Evaluation (DE.01)

Technical Approach

CH2M HILL will organize and evaluate existing data and data gathered during the previous tasks that will be used in the RI/FS effort. This subtask includes the following specific activities:

- Data Usability Evaluation and Field QA/QC
- Data Reduction, Tabulation, and Evaluation
- Preparing a Data Evaluation Report
- Contaminant Transport Modeling
- **Review of PRP's Documents and Data**

Data Evaluation and Reporting. CH2M HILL will complete the following activities as part of data evaluation:

- Acquire electronic files from EPA.
- Database management.
- Asses soil and groundwater contamination (includes plume maps).
- Prepare geologic cross sections and water level contour maps.
- Assess aquifer test analysis results.
- Evaluate field data.
- Evaluate investigation-derived waste data.
- Prepare Data Evaluation Reports.
- **Review PRP's planning documents .**
- **Review PRP's data.**
- **Review PRP's reports.**

A brief Data Evaluation Report will be prepared after each sampling event. The data reports will include sampling location maps and results tables for each medium sampled (groundwater, soil, soil gas), and provide prior sampling results where appropriate for comparison and evaluation. The results and findings from data validation and data usability review will be summarized and incorporated into each data report. The results of the data evaluation will be included in the RI report (Task 9).

Contaminant Transport Modeling. Groundwater flow modeling will be performed following the collection of RI data. The objective of the modeling will be to increase understanding of the hydraulic communication between aquifer zones on the local (site) and regional scale, evaluate contaminant transport pathways, assess risks to potential human receptors, and provide a tool to evaluate remediation scenarios (under Task 11). The scope of the modeling will include the preparation of a numerical groundwater flow model and its calibration to site-specific data. The results of the modeling will be included in the RI Report (Task 9).

Basis of Estimate

Data Evaluation and Reporting. Each Data Evaluation Report will be prepared in brief technical memorandum format and submitted to EPA. The LOE required to query data tables and figures from the GIS database for presentation is included in the estimate. It is assumed that

revisions to the reports will not be required. The estimated LOE for this subtask is based on CH2M HILL's past experience with similar environmental projects.

Review of PRP's Documents. **Written comments for each reviewed document will be prepared in brief technical memorandum format and submitted to EPA. It is assumed that revisions to the memos will not be required. It is assumed that the documents will include the Work Plan, Field Sampling Plan, Quality Assurance Project Plan, and Investigation Report; one draft and one final version of each document will be reviewed (8 document reviews). CH2M HILL will attend one teleconference after the review of each draft document and two meetings in San Francisco. CH2M HILL will also review the PRP's Health and Safety Plan but no comments will be prepared (one review). The estimated LOE for this subtask is based on CH2M HILL's past experience with similar environmental projects.**

Personnel and ODCs involved are:

P-3 (SM)	**30 hours**	**Review PRP's documents 2 hours per document x 9 documents (including HASP)for review, attend teleconferences (1 hour each x 4 teleconferences), attend meetings (4 hours each x 2 meetings)**
P-3 (SM)	**16 hours**	**Travel to attend meetings (8 hours each x 2 meetings)**
P-3 (SM)	18 hours	2 hours per report x 9 reports for review
P-4 (EN)	36 hours	Senior review (4 hours per report x 9 reports)
P-4 (HY)	**52 hours**	**6 hours per document x 8 documents, Senior review of PRP's documents and review comments, attend teleconferences (1 hour each x 4 teleconferences)**
P-4 (TR)	**18 hours**	**Sr. Chemist review of PRP's Draft and QAPP (Draft - 10 hours, Final – 6 hours), attend 2 teleconferences (1 hour each)**
P-4 (HY)	72 hours	6 hours per report x 9 reports, Senior review (2 hours per event x 9 events for informal data summaries)
P-3 (HY)	**86 hours**	**Review of PRP's documents; 10 hours per document x 8 documents, 2 hours for review HASP, attend teleconferences (1 hour each x 4 teleconferences)**
P-3 (HY)	90 hours	Task Manager - coordinate staff and provide technical direction, 8 hours per report x 9 reports, 2 hours per event x 9 events for informal data summaries
P-3 (DS)	252 hours	Database Specialist – 24 hours per report x 9 reports for database tables, plus 4 hours per event x 9 events for informal data summaries
P-2 (GIS)	108 hours	GIS Analyst – 2 figures per report x 4 hours per figure x 9 reports (8 groundwater sampling, 1 soil-gas sampling) for GIS maps, plus 4 hours per event for informal data summaries

P-2 (GR)	36 hours	4 hours per report x 9 reports for graphics support
P-2 (EN)	720 hours	40 hours per report x 9 reports for report preparation; 40 hours per event x 9 events for informal data summaries
P-1 (ED)	**16 hours**	**Edit review comments, 2 hours per each set x 8 sets of comments**
T-0 (AA)	**8 hours**	**Word processing, formatting review comments, 1 hour per each set x 8 sets of comments**
T-0 (AA)	54 hours	6 hours per report x 9 reports for assembly and reproduction
Reproduction		Photocopying draft and final reports; 9 reports (assume 3 copies to EPA and 2 copies for project team for each report, 100 pages per copy)
Color reproduction		Printing color copies for draft and final reports; 9 reports (assume 2 site maps x 10 copies)
Postage		Express mailing for distributing draft and final reports to EPA (9 reports)

Contaminant Modeling. For the purposes of budgeting, it is assumed that only limited contaminant fate and transport modeling will be performed. The estimated LOE for this subtask is based on CH2M HILL's past experience with similar environmental projects.

Personnel and ODCs involved are:

P-4 (TR)	64 hours	Sr. Hydrogeologist/Modeler - technical direction and senior review
P-3 (SM)	48 hours	Site Manager review and direction
P-3 (HY)	556 hours	Groundwater Modeler – develop and calibrate groundwater flow model and document results
P-3 (HY)	80 hours	Groundwater Modeler – develop contaminant fate and transport model and document results
P-2 (HY)	184 hours	Jr. Modeler – support groundwater model development and results documentation
P-2 (HY)	80 hours	Jr. Modeler – support fate and transport model development and results documentation
P-2 (EN)	36 hours	Coordinate staff and data sharing
P-2 (EN)	40 hours	Project Engineer – support modelers
P-2 (GR)	64 hours	Graphics support
T-0 (AA)	42 hours	General Clerical & administrative support

A summary of the forecasted labor for Subtask 6.01 is presented in Table 3-8.

TABLE 3-8
Labor Forecast
Subtask 6.01—Data Evaluation (DE.01)
Omega Chemical OU-2 - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Data Evaluation and Reporting	**178**	**492**	864	**16**			**62**	***1,612***
Contaminant Modeling	64	684	404				42	*1,194*
Total	***242***	***1,176***	*1,268*	***16***			***104***	***2,806***

Task 7—Assessment of Risk (RA)

Subtask 7.01— Assessment of Risk (RA.01)

Technical Approach

CH2M HILL will provide an evaluation and assessment of risk to human health and the environment posed by site contaminants. The risk assessment will account for both OU-1 and OU-2, and include the following:

- Determination of the current or potential risk to human health and the environment posed by site contaminants in the absence of any remedial action.
- Contaminant identification, exposure assessment, toxicity assessment, and risk characterization.
- Determination of the necessity of a remedial action at the site, justification for performing remedial action, and determination of exposure pathways that need to be removed.

CH2M HILL will prepare a Human Health Risk Assessment report that includes the following:

- Hazard Identification (sources)
- Dose-Response Assessment
- Conceptual Exposure/Pathway Analysis
- Characterization of Site and Potential Receptors
- Exposure Assessment
- Risk Characterization
- Identification of Limitations/Uncertainties
- Site Conceptual Model

CH2M HILL will prepare a Screening Level Ecological Risk Assessment (SLERA)report that includes the following:

- Hazard Identification (sources)
- Dose-Response Assessment
- Conceptual Exposure/Pathway Analysis
- Critical exposure pathways (e.g., surface water)

- Characterization of Site and Potential Receptors
- Select Chemicals, Indicator Species, and End Points
- Exposure Assessment
- Toxicity Assessment/Ecological Effects Assessment
- Risk Characterization
- Identification of Limitations/Uncertainties
- Site Conceptual Model

Basis of Estimate

Human Health Risk Assessment. Human exposures, and potential health hazards and excess lifetime cancer risks for onsite soils (OU-1) will be evaluated assuming the adult and child receptors, exposure routes, and COPCs presented in the Omega Chemical Site PRP Organized Group Onsite Soils RI/FS Work Plan (CDM, February 24, 2003). Human exposures, and potential health hazards and excess lifetime cancer risks will be assessed for the vapor intrusion pathway (i.e., volatilization of chemicals from impacted groundwater or soil gas through subsurface soils, and building foundations into indoor air for residential and commercial/industrial buildings, both onsite and offsite) using USEPA's Johnson and Ettinger model (July 2003). Potential impacts to groundwater as a domestic water supply will be based on comparison to MCLs. The level of effort below is for the HHRA for both OU-1 and OU-2 combined.

Personnel and ODCs involved are:

P-3 (SM)	10 hours	Coordination and discussions with EPA
P-3 (SM)	12 hours	Meeting with EPA in San Francisco
P-4 (TX)	12 hours	Meeting with EPA in San Francisco
P-4 (TX)	248 hours	Sr. Toxicologist – coordination with EPA and technical support, human health risk assessment approach and methodology, technical and regulatory lead, supervision of technical support, senior author of HHRA report
P-4 (RA)	32 hours	Sr. Risk Assessor – consultation during preparation of HHRAs and review of draft HHRAs
P-3 (RA)	240 hours	Risk Assessor/Database Specialist– query database reports; exposure, and health hazard and risks spreadsheet design; vapor intrusion modeling; health impacts summary; author sections of HHRA reports for OU-1 and OU-2
P-2 (EN)	184 hours	Engineer/Risk Assessor - staff and data coordination
P-2 (GR)	24 hours	Prepare graphics for EPA's HHRA report for OU-1 and OU-2
P-1 (ED)	16 hours	Edit report
T-0 (AA)	40 hours	Word processing, assembly and reproduction of reports
Reproduction		$350

Color reproduction	$100
Postage	$150
Travel	See Table 8-3

Ecological Risk Assessment. The LOE presented below is based upon the judgment and past experience of the SM and RA task leaders with similar tasks performed under EPA RAC IX. It is assumed that summary ERA memoranda for OU-1 and OU-2 will be prepared prior to the RI report. It is further assumed that usual publicly available data are available for the site.

Personnel and ODCs for Draft SLERA involved are:

P-3 (SM)	21 hours	Coordinate with staff (4 hours); technical support for draft development (2 hours); communications with EPA (2 hours); review draft (2 hour); cover letter and submittal (1 hour); site visit (10 hours)
P-4 (RA)	24 hours	Sr. Risk Assessor - coordination with EPA and technical staff to gather initial information about the site in order to coordinate with his staff conducting the work (8 hours); review and comment on SLERA draft report (4 hours); site visit (12 hours, travel from Sacramento)
P-3 (RA)	60 hours	Review existing documentation relative to risk in order to perform SLERA (12 hours), query database reports prepare draft SLERA reports (48 hours)
P-2 (GR)	10 hours	Prepare graphics for SLERA report
P-1 (ED)	8 hours	Edit report
T-0 (AA)	16 hours	Word processing and document preparation assistance
Reproduction		$50 Assume 5 copies of 2 draft reports, 50 pages per copy
Postage		$50
Travel		See Table 8-3

Personnel and ODCs involved for Final SLERA are:

P-4 (ES)	2 hours	Sr. Risk Assessor to provide input on final reports
P-3 (SM)	8 hours	Coordinate with staff (4 hours); communications with EPA (2 hours); cover letter and submittal (2 hours)
P-3 (ES)	16 hours	Incorporate changes per EPA comments
P-1 (ED)	4 hours	Edit report
T-0 (AA)	8 hours	Word processing and document preparation assistance
Postage		$50
Reproduction		$50 Assume 5 copies of 2 final reports, 50 pages per copy

A summary of the forecasted labor for Subtask 7.01 is presented in Table 3-9.

TABLE 3-9
Labor Forecast
Subtask 7.01—Assessment of Risk (RA.01)
Omega Chemical OU-2 - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Human Health Risk Assessment	292	262	208	16			40	*818*
Screening Level Ecological Risk Assessment	26	105	10	12			24	*177*
Total	*318*	*367*	*218*	*28*			*64*	*995*

Task 8—Treatability Study/Pilot Testing (TT) [NOT USED]

Task 9—Remedial Investigation Report (RR)

Subtask 9.01—Remedial Investigation Report (RR.01)

Technical Approach

CH2M HILL will prepare a Remedial Investigation (RI) report that establishes the site characteristics such as media contaminated, extent of contamination, and the physical boundaries of the contamination.

Basis of Estimate

The estimated LOE for preparation of the draft RI is based on CH2M HILL's past experience with similar environmental projects.

Personnel and ODCs involved are:

P-4 (GIS)	32 hours	GIS Analyst – GIS maps
P-3 (SM)	16 hours	Project manager review
P-4 (HY)	24 hours	Technical direction and senior review
P-3 (HY)	64 hours	Draft RI preparation
P-3 (DS)	32 hours	Database Specialist – database tables
P-2 (EN)	120 hours	Task Manager – staff coordination, Draft RI preparation
P-2 (EN)	220 hours	Draft RI preparation
P-2 (GR)	40 hours	Graphics support
P-1 (ES)	100 hours	Support draft RI preparation
P-1 (ED)	24 hours	Edit report
T-0 (AA)	40 hours	Word processing, assembly and reproduction of draft RI

Reproduction	Photocopying; $300 (assume 3 copies to EPA and 2 copies for project team for each report, 300 pages per copy)
Color Reproduction	Printing color copies; $200 (assume 8 maps x 5 copies)
Postage	Express mailing for distribution to EPA ($100)

The estimated LOE for preparing the final RI is based on approximately 25 percent of the LOE for preparing the final RI.

Personnel and ODCs involved are:

P-4 (GIS)	8 hours	GIS Analyst – GIS maps
P-3 (SM)	4 hours	Project manager review
P-4 (HY)	6 hours	Technical direction and senior review
P-3 (HY)	24 hours	Final RI preparation
P-3 (DS)	8 hours	Database Specialist – database tables
P-2 (EN)	30 hours	Task Manager – staff coordination, Final RI preparation
P-2 (EN)	80 hours	Final RI preparation
P-2 (GR)	10 hours	Graphics support
P-1 (ES)	25 hours	Support Final RI preparation
P-1 (ED)	8 hours	Edit report
T-0 (AA)	12 hours	Word processing, assembly and reproduction of Final RI
Reproduction		Photocopying; $300 (assume 3 copies to EPA and 2 copies for project team for each report, 300 pages per copy)
Color reproduction		Printing color copies; $200 (assume 8 maps x 5 copies)
Postage		Express mailing for distribution to EPA ($100)

A summary of the forecasted labor for Subtask 9.01 is presented in Table 3-10.

TABLE 3-10
Labor Forecast
Subtask 9.01—Remedial Investigation Report (RR.01)
Omega Chemical OU-2 - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Draft RI Report	56	112	**380**	124			40	***712***
Final RI Report	14	36	120	33			12	215
Total	*70*	*148*	***500***	*157*			*52*	***927***

Task 10—Remedial Alternatives Screening (RS)

Subtask 10.01— Remedial Alternatives Screening (RS.01)

Technical Approach

CH2M HILL will prepare a Technical Memorandum evaluating hazardous waste management alternatives that will remediate or control contaminated media (soil, surface water, ground water, sediments) remaining at the site, as deemed necessary in the RI, to provide adequate protection of human health and the environment. The potential alternatives will encompass, as appropriate, a range of alternatives in which treatment is used to reduce the toxicity, mobility, or volume of wastes but vary in the degree to which long-term management of residuals or untreated waste is required, and will include one or more alternatives involving containment with little or no treatment, and a no-action alternative.

CH2M HILL will attend remedial selection meetings to provide technical support to EPA, as necessary.

CH2M HILL will discuss the review goals with EPA before proceeding with the technical evaluation. The Technical Memorandum will include the following information, as specified in the EPA SOW:

- Remedial Action Objectives
- General Response Actions
- Identification and Screening of Applicable Remedial Technologies
- Development of Remedial Alternatives in Accordance with NCP
- Screening of Remedial Alternatives for Effectiveness, Implementability, and Cost

Basis of Estimate

The estimated LOE for preparing the draft Technical Memorandum is based on the EN and SM attending two 4-hour meetings, with travel and is based on CH2M HILL's past experience with similar environmental projects.

Personnel and ODCs involved are:

P-4 (TR)	40 hours	Senior technical review
P-3 (SM)	16 hours	Project manager review
P-3 (HY)	40 hours	Technical direction
P-3 (EN)	64 hours	Task Manager – staff coordination; Draft Tech Memo preparation
P-2 (EN)	160 hours	Draft Tech Memo preparation
P-1 (ES)	40 hours	Support preparation of Draft Tech Memo
T-0 (AA)	20 hours	Assembly and reproduction of Draft Tech Memo
Reproduction		Photocopying; $100 (assume 3 copies to EPA and 2 copies for project team for each report, 100 pages per copy)

Color reproduction	Printing color copies; $200 (assume 4 maps x 5 copies)
Postage	Express mailing for distribution to EPA ($100)
Travel	See Table 8-3

The estimated LOE for preparing the final Technical Memorandum is based on approximately 25 percent of the LOE for preparing the draft Technical Memorandum.

Personnel and ODCs involved are:

P-4 (TR)	22 hours	Senior technical review (10 hours), attend technical meeting (12 hours)
P-3 (SM)	28 hours	Project manager review (16 hours), attend technical meeting (12 hours)
P-3 (HY)	22 hours	Technical direction (10 hours), attend technical meeting (12 hours)
P-3 (EN)	20 hours	Task Manager – staff coordination; Final Tech Memo preparation
P-2 (EN)	40 hours	Final Tech Memo preparation
P-1 (ES)	10 hours	Support preparation of Final Tech Memo
T-0 (AA)	20 hours	Assembly and reproduction of Final Tech Memo
Reproduction		Photocopying; $100 (assume 3 copies to EPA and 2 copies for project team for each report, 100 pages per copy)
Color Reproduction		Printing color copies; $200 (assume 4 maps x 5 copies)
Postage		Express mailing for distribution to EPA ($100)

A summary of the forecasted labor for Subtask 10.01 is presented in Table 3-11.

TABLE 3-11
Labor Forecast
Subtask 10.01— Remedial Alternatives Screening (RS.01)
Omega Chemical OU-2 - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Prepare Draft Tech Memo	40	120	160	40			20	*380*
Prepare Final Tech Memo	22	70	40	10			20	162
Total	*62*	*190*	*200*	*50*			*40*	*542*

Task 11—Remedial Alternatives Evaluation (RE)

Subtask 11.01— Remedial Alternatives Evaluation (RE.01)

Technical Approach

CH2M HILL will provide an evaluation of alternatives that includes a technical description of each alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative and a discussion that profiles the performance of that alternative with respect to each of the evaluation criteria.

Basis of Estimate

Technical evaluations will be performed based on the results of the RI, state and community comments and concerns, and EPA site management decisions. The need for and specific scope of these evaluations has not yet been determined. For budgeting purposes, it is assumed that the evaluations will require the number of hours specified below. It is assumed that groundwater modeling will be used to evaluate some of the remedial alternatives; the model developed under Task 6 will be utilized. In addition, budget is included for two meetings with EPA and state/community representatives. Cost will increase if more evaluations are required.

Key Assumptions

- Vendor cost estimates can be obtained for needed treatment equipment.
- No unusual contaminants or treatment technologies need to be addressed.

Personnel and ODCs involved are:

P-3 (SM)	24 hours	Prepare for and attend two meetings
P-4 (EN)	24 hours	Prepare for and attend two meetings
P-3 (SM)	16 hours	Input to and review of supplemental evaluations
P-4 (EN)	40 hours	Perform supplemental evaluations
P-4 (TR)	8 hours	Review supplemental evaluations
P-3 (HY)	160 hours	Modeler – evaluate remedial alternatives
P-4 (HY)	24 hours	Sr. Modeler – review evaluation of remedial alternatives
P-3 (EN)	80 hours	Perform supplemental evaluations
P-1 (EN)	56 hours	Perform supplemental evaluations
T-2 (GR)	40 hours	Prepare graphics for supplemental evaluations
T-0 (AA)	40 hours	Provide clerical support for supplemental evaluations
Reproduction		$300 (handouts for meetings, color maps)

A summary of the forecasted labor for Subtask 11.01 is presented in Table 3-12.

TABLE 3-12
Labor Forecast
Subtask 11.01— Remedial Alternatives Evaluation (RE.01)
Omega Chemical OU-2 - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Remedial Alternative Evaluations	96	280		56	40		40	*512*
Total	*96*	*280*		*56*	*40*		*40*	*512*

Task 12—FS Report and RI/FS Report (FS)

Subtask 12.01—FS Report and RI/FS Report (FS.01)

Technical Approach

CH2M HILL will prepare a Feasibility Study (FS) Report consisting of a detailed analysis of alternatives and cost-effectiveness analysis in accordance with NCP 300.68(h)(3)(i)(2). The report will contain the following in accordance with the EPA SOW:

- Feasibility Study Objectives
- Remedial Objective
- General Response Action
- Identification and Screening of Remedial Technologies
- Remedial Alternatives Description
- Detailed Analysis of Remedial Alternatives
- Summary and Conclusions

Basis of Estimate

The estimated LOE for preparing the Draft FS Report is based on CH2M HILL's past experience with similar environmental projects.

Personnel and ODCs involved are:

P-4 (TR)	40 hours	Senior engineer review
P-3 (SM)	24 hours	Project manager review
P-3 (HY)	76 hours	Technical direction and review
P-2 (HY)	50 hours	Task Manager - staff coordination; Draft FS preparation
P-2 (HY)	150 hours	Draft FS preparation
P-1 (ES)	40 hours	Support preparation of Draft FS
P-1 (ED)	24 hours	Edit report
T-0 (AA)	40 hours	Word processing, assembly and reproduction of Draft FS
Reproduction		Photocopying; assume 3 copies to EPA and 2 copies for project team for each report, 200 pages per copy

Color Reproduction	Printing color copies; assume 4 maps x 5 copies
Postage	Express mailing for distribution to EPA

The estimated LOE for preparing the final FS Report is based on approximately 30 percent of the LOE for preparing the draft FS Report.

Personnel and ODCs involved are:

P-4 (TR)	12 hours	Senior engineer review
P-3 (SM)	8 hours	Project manager review
P-3 (HY)	22 hours	Technical direction and review
P-2 (EN)	15 hours	Task Manager - staff coordination; Final FS preparation
P-2 (EN)	45 hours	Final FS preparation
P-1 (ES)	12 hours	Support Final FS preparation
P-1 (ED)	8 hours	Edit report
T-0 (AA)	20 hours	Word processing, assembly and reproduction of Final FS
Reproduction		Photocopying; $200 (assume 3 copies to EPA and 2 copies for project team for each report, 200 pages per copy)
Color reproduction		Printing color copies; $200 (assume 4 maps x 5 copies)
Postage		Express mailing for distribution to EPA ($100)

A summary of the forecasted labor for Subtask 12.01 is presented in Table 3-13.

TABLE 3-13
Labor Forecast
Subtask 12.01—FS Report and RI/FS Report (FS.01)
Omega Chemical OU-2 - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Draft FS Report	40	100	200	64			40	*444*
Final FS Report	*12*	*30*	*60*	*20*			*20*	*142*
Total	*52*	*130*	*260*	*84*			*60*	*586*

Task 13—Post RI/FS Support (PR)

Subtask 13.01— Post RI/FS Support (PR.01)

Technical Approach

This subtask includes the preparation of scope of work and cost estimates, and technical support for ROD and associated activities.

Scope of Field Activities and Cost Estimates. EPA will provide CH2M HILL with a draft scope of field work for OU-2 and CH2M HILL will provide comments and revise the scope of work as directed by the WAM. OU-2 field work will include installation and sampling of

new groundwater wells, quarterly sampling of existing wells, soil gas sampling, and aquifer testing as necessary. CH2M HILL will also assist EPA in developing a cost estimate for implementing the site-wide RI/FS and RA.

Technical Support for ROD. CH2M HILL will provide support required for preparation of the ROD by attending meetings; preparing presentation materials; providing technical assistance on the Responsiveness Summary, Proposed Plan, and ROD; and preparing a Feasibility Study Addendum.

Attend Interagency Meetings. **CH2M HILL will attend interagency meetings coordinated by the Water Replenishment District of Southern California, prepare presentations on EPA's activities under this WA, and gather and evaluate information obtained from other agencies.**

Basis of Estimate

The estimated LOE for the revision of the scope of OU-2 field work and preparation of the site-wide RI/FS cost estimate is based on actual and expected costs. The estimated LOE for the rest of this subtask is based on CH2M HILL's past experience with similar environmental projects. The LOE estimated for the preparation of the final ROD is approximately 20 percent of the LOE estimated for the preparation of the draft ROD and is included in the estimate below. Budget for two technical meetings is included (the budget for three public meetings is included in Task 2).

Personnel and ODCs involved are:

Scope of Field Activities and RI/FS Cost Estimate

P-4 (PM)	6 hours	PM review
P-3 (SM)	16 hours	SM review, coordination with EPA
P-4 (EN)	6 hours	Review cost estimate
P-4 (RA)	2 hours	Ecological Risk Assessor - develop cost estimate
P-4 (RA)	4 hours	Review cost estimate
P-4 (RA)	24 hours	Human Health Risk Assessor - develop cost estimate
P-3 (HY)	96 hours	Revise scope of work (16 hours) , develop cost estimate (48 hours)
P-3 (PR)	14 hours	Develop cost estimate
P-2 (HY)	24 hours	Develop cost estimate
P-1 (PR)	4 hours	Assist developing cost estimate
T-0 (AA)	8 hours	Assist developing cost estimate
Reproduction	NA	Electronic submission

RA Cost Estimate

P-4 (PM)	2 hours	PM review

P-3 (SM)	**100** hours	SM review (16 hours), coordination with EPA (**40** hours), conference calls (4 hours), **preparation for and attendance of one meeting (40 hours)**
P-4 (TR)	12 hours	Senior engineer review (8 hours), conference calls (4 hours)
P-4 (RA)	2 hours	Ecological Risk Assessor - develop cost estimate
P-4 (RA)	6 hours	Human Health Risk Assessor - develop cost estimate
P-3 (HY)	**140** hours	Develop cost estimate
P-4 (EN)	28 hours	Develop cost estimate (24 hours), conference calls (4 hours)
P-2 (EN)	40 hours	Develop cost estimate
P-3 (PR)	8 hours	Develop cost estimate
P-1 (PR)	8 hours	Assist developing cost estimate
T-0 (AA)	8 hours	Assist developing cost estimate
Reproduction	NA	Electronic submission
Technical Support for ROD		
P-4 (PM)	4 hours	PM review
P-4 (TR)	32 hours	Senior engineer review (16 hours), prepare for and attend 2 meetings (8 hours each)
P-3 (SM)	40 hours	Project manager review (8 hours), prepare for and attend 2 meetings (8 hours each), coordination with EPA (16 hours)
P-3 (HY)	40 hours	Technical direction and review
P-2 (EN)	64 hours	Task manager - Staff coordination, draft and final ROD preparation
P-2 (EN)	128 hours	Draft (100 hours) and final ROD (28 hours) preparation
T-0 (AA)	16 hours	Assembly and reproduction of draft and final ROD
Reproduction		Photocopying; $200 (assume 3 copies to EPA and 2 copies for project team for each report, 50 pages per copy) x 2 (Draft and Final Reports)
Postage		Express mailing for distribution to EPA ($200)
Travel		See Table 8-3
Preparation of FS Addendum		
P-4 (TR)	20 hours	Senior engineer review
P-3 (SM)	16 hours	Project manager review, coordination with EPA
P-3 (HY)	40 hours	Technical direction and review
P-2 (EN)	64 hours	Task manager - Staff coordination; FS Addendum preparation

P-2 (EN)	128 hours	FS Addendum preparation
P-1 (ES)	40 hours	Support preparation of FS Addendum
T-0 (AA)	10 hours	Assembly and reproduction of FS Addendum
Reproduction		Photocopying; $200 (assume 3 copies to EPA and 2 copies for project team for each report, 200 pages per copy)
Color reproduction		Printing color copies; $200 (assume 4 maps x 5 copies)
Postage		Express mailing for distribution to EPA ($100)

Attend Interagency Meetings

P-4 (TR)	**4 hours**	**Senior review of presentations**
P-3 (SM)	**55 hours**	**Project manager attendance of meetings (5 meetings x 8 hours each), coordination with EPA (5 hours), travel to meetings (5 meetings x 2 hours)**
P-3 (HY)	**48 hours**	**Preparation of presentations (2 presentations x 12 hours each), evaluation of data from other agencies (24 hours).**
P-2 (HY)	**40 hours**	**Task manager – formatting of data from other agencies for import into project database.**
P-3 (GIS)	**48 hours**	**Prepare presentation materials (assume 2 presentations x 4 maps x 4 hours each), import data from other agencies into database (16 hours)**
P-2 (GR)	**8 hours**	**Graphics support for preparation of presentations**
T-0 (AA)	**4 hours**	**Assembly and reproduction of presentations**
Reproduction		**Photocopying; $100 (assume 2 presentations x 10 copies of presentation materials x 20 pages per copy)**
Color Reproduction		**Printing color copies; $160 (assume 2 presentations x 4 maps x 10 copies)**

A summary of the forecasted labor for Subtask 13.01 is presented in Table 3-14.

TABLE 3-14
Labor Forecast
Subtask 13.01—Post RI/FS Support (PR.01)
Omega Chemical - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
SOW Revision and RI/FS Cost Estimate	42	126	24	4			8	*204*
RA Cost Estimate	50	**248**	40	8			8	***354***
Support and Prepare ROD	36	80	192				16	*324*
Prepare FS Addendum	20	56	192	40			*10*	*318*
Attend Interagency Meetings	**4**	**151**	**48**				**4**	**207**
Total	***152***	***661***	***496***	*52*			***46***	***1,407***

Task 15—Administrative Record (AR) [NOT USED]

Task 16—Work Assignment Closeout (CO)

Subtask 16.01— Work Assignment Closeout (CO.01)

Technical Approach

CH2M HILL shall perform the necessary activities to close out WA in accordance with contract requirements. As part of the WA closeout, CH2M HILL will package and return all documents to EPA and prepare a Work Assignment Closeout Report (WACR). The WACR will include all LOE by p-level and costs in accordance with the WBS.

Basis of Estimate

The estimated LOE is based on the judgement of the SM after consultation with the PM.

Personnel and ODCs involved are:

P-3 (SM)	2 hours	Oversee file indexing and packaging and shipping of Government-furnished files
P-2 (EN)	6 hours	Task Manager - Oversee file indexing and packaging and shipping of Government-furnished files
T-0 (AA)	24 hours	Prepare index of files/documents Package and ship Government-furnished files
P-4 (PM)	2 hours	Review WACR
P-3 (SM)	16 hours	Prepare WACR
P-2 (KA)	8 hours	Closeout subcontracts
T-0 (PA)	4 hours	Prepare financial closeout
T-0 (AA)	4 hours	WACR preparation/word processing support
Postage		$100 - mail documents to EPA or other document repositories

A summary of the forecasted labor for Subtask 16.01 is presented in Table 3-15.

TABLE 3-15
Labor Forecast
Subtask 16.01—Work Assignment Closeout (CO.01)
Omega Chemical OU-2 - RI/FS

Activity	P-4	P-3	P-2	P-1	T-2	T-1	T-0	Total LOE
Closeout WA	2	18	14				32	*66*
Total	*2*	*18*	*14*				*32*	*66*

4.0 Project Deliverables and Schedule

The Period of Performance for this WA is July 24, 2003 through September 30, 2005. The deliverables and a project schedule by subtask are set forth in Table 4-1.

TABLE 4-1
Estimated Major Deliverable Schedule
Omega Chemical OU-2 - RI/FS

Task	Subtask	Deliverable	Schedule (calendar days)
Project Planning and Support (PP)	1.01	Comments on PRP's HASP	14 days after receipt of HASP
	1.01	Comments on PRP's QAPP	14 days after receipt of QAPP
	1.01	Comments on PRP FSP	14 days after receipt of FSP
	1.01	Quality Assurance Project Plan (QAPP)	As directed by EPA WAM
	1.01	Health & Safety Plan (HASP)	As directed by EPA WAM
	1.01	Sampling Analysis Plan (SAP)	As directed by EPA WAM
	1.02	RI/FS Work Plan	November 4, 2003
	1.02	Revised RI/FS Work Plan	December 9, 2004
	1.03	Monthly Progress Reports	In accordance with the contract requirements
	1.03	Ad hoc Financial Information Request	14 days after WAM request
Field Investigation (FI)	3.01	Field Investigation Periodic Reports	4 days after each 1 week period
	3.01	Field Investigation Final Summary Report	21 days after the end of all field activities
Data Evaluation (DE)	6.01	Data Evaluation Report and Modeling Memo	As directed by EPA WAM
Assessment of Risk (RA)	7.01	Draft Human Health Risk Assessment Report	28 days after receipt of analytical results
	7.01	Final Human Health Risk Assessment Report	21 days after receipt of EPA comments
	7.01	Draft Ecological Risk Assessment Report	28 days after receipt of analytical results
	7.01	Final Ecological Risk Assessment Report	21 days after receipt of EPA comments

TABLE 4-1 [CONT'D.]
Estimated Major Deliverable Schedule
Omega Chemical OU-2 - RI/FS

Task	Subtask	Deliverable	Schedule (calendar days)
Remedial Investigation Report (RR)	9.01	Draft RI Report	28 days after receipt of analytical results
	9.01	Final RI Report	21 days after receipt of EPA comments
Remedial Alternative Screening (RS)	10.01	Draft Remedial Alternatives Technical Memorandum	21 days after EPA approval of RI Report
	10.01	Final Remedial Alternatives Technical Memorandum	21 days after receipt of EPA comments
Remedial Alternatives Evaluation (RE)	11.01	Remedial Alternatives Evaluation	21 days after EPA approval of Technical Memorandum
FS Report and RI/FS Report (FS)	12.01	Draft Feasibility Study Report	21 days after EPA approval of Remedial Alternatives Evaluation
	12.01	Final Feasibility Study Report	21 days after receipt of EPA comments
Post RI/FS Support (PR)	13.01	ROD, FS Addendum	As directed by EPA WAM
Work Assignment Closeout (CO)	16.01	Work Assignment Completion Report	As directed in the WA Closeout Notification

5.0 Project Organization

The RAC Program Manager, supported by the PMO staff, has overall responsibility for the program. The SM will be responsible for project coordination, technical issues, budget control, administrative matters, and all program issues as they occur on a routine basis for this WA. The WA deliverables will be generated by or for the SM and then processed for senior technical and administrative review before submittal to EPA.

Table 5-1 lists anticipated key project personnel.

TABLE 5-1
Key Project Personnel
Omega Chemical OU-2 - RI/FS

Name	Title—Responsibility	Professional Level
Tom Perina	Site Manager	P-3
Artemis Antipas	Senior Chemist	P-3
Ken Martins	Senior Engineer	P-4
Richard Braun	Human Health Risk Assessor	P-4
Harry Ohlendorf	Ecological Risk Assessor	P-4
Justin Zumbro	Task Manager – Field Investigations	P-2
Dan Jablonski	Project Hydrologist	P-2

Part II

Part II contains the pricing information that supports the activities identified and/or described in Part I of this **Revised** Work Plan. Pricing assumptions are described in Section 6.0 of this **Revised** Work Plan.

Section 7.0 presents Level I pricing data consisting of a summary of proposed costs by task and subtask, and a summary of the **Revised** Work Plan totals.

Section 8.0 presents Level II pricing data consisting of a detailed breakout of all cost elements for each task and subtask to be performed under this **Revised** Work Plan.

6.0 Pricing Information

6.1 General Pricing Assumptions

6.1.1 Direct Labor

Labor costs are derived from the hour estimates described in Section 3.0. The labor rates used are based on CH2M HILL average rates in agreement with the Forward Pricing Rate Agreement with the Government for 2003. These rates were translated to EPA P-grade categories and then escalated to align with the Government fiscal years in the Period of Performance. The complete documentation for the labor rates shown in Table 8-2 is included in the RAC IX Pricing Rate Guide.

6.1.2 Indirect Rates (Payroll Fringe, Overhead, and G&A)

As specified in CH2M HILL's Forward Pricing Rate Agreement for Indirect Rate Costs with the Government, an indirect rate of 150.0 percent is currently used for payroll fringe, overhead, and G&A, applied to direct labor only (see RAC IX Pricing Rate Guide and any updates thereof).

6.1.3 Subcontracts

Pool subcontracts are discussed in Section 3.0 and the cost estimates provided are as indicated. These cost estimates are based on actual costs, vendor quotes, subcontractor bids, or engineer's estimates.

6.1.4 Travel

Travel is estimated on a per-trip basis as discussed in Section 3.0 and as detailed in Table 8-3. Lodging, Meals, and Incidentals are priced using the Federal Travel rates for the destination. Airfare, Lodging, and Local Transportation costs are based on typical fares at the time this **Revised** Work Plan was developed.

6.1.5 Other Procurement Costs

These costs are estimated based on the following:

Postage/Shipping

Refer to BOEs in Section 3.0 of this **Revised** Work Plan and the RAC IX Pricing Rate Guide.

Consumables

Field Consumables expected to be used in the performance of this WA, may include, but are not limited to: ice, bags, water, field books, batteries, disposable cameras, rolls of film, sunscreen, paper towels, coolers, and similar project-related field supplies and consumables.

6.1.6 Production Copiers

Refer to the RAC IX Pricing Rate Guide.

6.1.7 Service Center Rates

CH2M HILL uses Government-approved Service Center Rates for computers, communications, and health and safety costs in accordance with its Advance Agreement Regarding Service Center Rates (see RAC IX Pricing Rate Guide or other notices as applicable). Each Service Center Rate is discussed below.

Computers

The RAC IX Service Center Rate for CH2M HILL-owned microcomputers and connection time to local- and wide-area networks is $4.40 per hour.

Communications

The Service Center Rate for all telephone-related charges (long distance, fax, etc.) is $1.25 per hour.

Health and Safety

Certain individuals receive complete health and safety training and medical monitoring. To cover this cost, there is a $1.60 charge for each trained individual's hours. In the pricing information for this WA, we have estimated that 80 percent of the labor hours worked will be worked by individuals in the health and safety program; therefore, 80 percent of the total hours were assessed this $1.60 charge.

6.1.8 Fee

Base Fee is calculated at 4 percent of all costs, except subcontractors.

Award Fee is calculated at 6 percent of all costs, except subcontractors.

Fee on Subcontractor is calculated at 5 percent of all subcontractor costs.

6.2 Specific Pricing Assumptions

All WA-specific pricing assumptions are included in Section 3.0 of this **Revised** Work Plan.

7.0 Level I Pricing

Table 7-1
Work Plan Totals by Task
Omega Chemical RI/FS - WA No. 175-RICO-09BC

		Total Work Plan Budget	
Task	**Task Description**	**LOE**	**Dollars**
1.01	Project Planning (PP)	1,176	$121,646
1.02	Work Plan Preparation (PP)	168	$20,028
1.03	Project Management (PP)	868	$97,128
2	Community Relations (CR)	1,537	$172,430
3	Field Investigation (FI)	6,076	$867,143
4	Sample Analysis (SN)	240	$81,942
5	Analytical Support and Data Validation (AN)	615	$75,829
6	Data Evaluation (DE)	2,806	$314,096
7	Assessment of Risk (RA)	995	$127,829
8	Treatability Study / Pilot Testing (TT)	0	$0
9	Remedial Investigation Report (RR)	927	$94,124
10	Remedial Alternatives Screening (RS)	542	$60,801
11	Remedial Alternatives Evaluation (RE)	512	$62,813
12	FS Report and RI/FS Report (FS)	586	$60,706
13	Post RI/FS Support (PR)	1,407	$162,361
15	Administrative Record (AR)	0	$0
16	Work Assignment Closeout (CO)	66	$6,157
	TOTALS	**18,521**	**$2,325,034**

Table 7-2
Work Plan Totals by Subtask
Omega Chemical RI/FS - WA No. 175-RICO-09BC

		Total Work Plan Budget	
Task	**Task Description**	**LOE**	**Dollars**
1.01	Project Planning (PP)	1,176	$121,646
1.02	Work Plan Preparation (PP)	168	$20,028
1.03	Project Management (PP)	868	$97,128
2.01	Community Relations (CR)	1,537	$172,430
3.01	Field Investigation (FI)	6,076	$867,143
4.01	Sample Analysis (SN)	240	$81,942
5.01	Analytical Support and Data Validation (AN)	615	$75,829
6.01	Data Evaluation (DE)	2,806	$314,096
7.01	Assessment of Risk (RA)	995	$127,829
8.01	Treatability Study / Pilot Testing (TT)	0	$0
9.01	Remedial Investigation Report (RR)	927	$94,124
10.01	Remedial Alternatives Screening (RS)	542	$60,801
11.01	Remedial Alternatives Evaluation (RE)	512	$62,813
12.01	FS Report and RI/FS Report (FS)	586	$60,706
13.01	Post RI/FS Support (PR)	1,407	$162,361
15.01	Administrative Record (AR)	0	$0
16.01	Work Assignment Closeout (CO)	66	$6,157
	TOTALS	**18,521**	**$2,325,034**

8.0 Level II Pricing

Table 8-1
Task Summary
Omega Chemical RI/FS
WA No. 175-RICO-09BC

Tasks		2003 Rates	Project Planning & Support (PP) Task 1	Community Relations (CR) Task 2	Field Investigation (FI) Task 3	Sample Analysis (SN) Task 4	Support and Data Validation (AN) Task 5	Data Evaluation (DE) Task 6	Assessment of Risk (RA) Task 7	Remedial Investigation Report (RR) Task 9	Remedial Alternatives Screening (RS) Task 10	Remedial Alternatives Evaluation (RE) Task 11
Labor:	P4	$55.50	73	9	34	0	80	242	318	70	62	96
	P3	$41.50	1,200	695	612	120	409	1,176	367	148	190	280
	P2	$29.66	243	529	3,902	80	110	1,268	218	500	200	0
	P1	$27.01	370	8	0	0	0	16	28	157	50	56
	T2	$27.48	28	134	1,424	0	0	0	0	0	0	40
	T1	$13.97	0	0	0	0	0	0	0	0	0	0
	TO	$21.19	298	162	104	40	16	104	64	52	40	40
		Total Hours	**2,212**	**1,537**	**6,076**	**240**	**615**	**2,806**	**995**	**927**	**542**	**512**
		Labor Cost before Escalation	$78,137	$52,363	$184,354	$8,200	$25,015	$102,480	$41,458	$30,199	$19,456	$20,407
		Labor Escalation	$2,005	$1,744	$5,565	$279	$834	$3,393	$1,460	$978	$660	$723
Escalated Labor Cost			*$80,142*	*$54,107*	*$189,919*	*$8,480*	*$25,849*	*$105,873*	*$42,918*	*$31,177*	*$20,116*	*$21,131*
Indirect Rates			*$120,212*	*$81,160*	*$284,879*	*$12,720*	*$38,774*	*$158,810*	*$64,376*	*$46,766*	*$30,174*	*$31,696*
Service Centers:	Health & Safety	$1.60	$2,831	$1,967	$7,777	$307	$787	$3,592	$1,274	$1,187	$694	$655
	Computer	$4.40	$9,733	$6,763	$26,734	$1,056	$2,706	$12,346	$4,378	$4,079	$2,385	$2,253
	Communication	$1.25	$2,765	$1,921	$7,595	$300	$769	$3,508	$1,244	$1,159	$678	$640
		Total Service Center	*$15,329*	*$10,651*	*$42,107*	*$1,663*	*$4,262*	*$19,446*	*$6,895*	*$6,424*	*$3,756*	*$3,548*
	Prod. Copiers	$0.050	$125	$45	$0	$0	$15	$450	$0	$0	$0	$0
		Travel See Table 8.3	*$1,141*	*$3,531*	*$38,306*	*$0*	*$0*	*$0*	*$1,219*	*$0*	*$428*	*$428*
Subcontracts:	Drilling, Survey,Util.Clear.,Traffic		$0	$0	$182,800	$0	$0	$0	$0	$0	$0	$0
	Laboratory		$0	$0	$0	$54,089	$0	$0	$0	$0	$0	$0
	Translation + Court Reporter		$0	$3,845	$0	$0	$0	$0	$0	$0	$0	$0
		Total Subcontracts	*$0*	*$3,845*	*$182,800*	*$54,089*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
Other Direct Costs:	Equipment Rental		$0	$0	$31,300	$0	$0	$0	$0	$0	$0	$0
	Supplies		$0	$650	$13,911	$0	$0	$0	$0	$0	$0	$0
	Shipping/Reproduction		$144	$2,940	$13,400	$0	$36	$963	$800	$1,200	$800	$300
		Total Other Procurement	*$144*	*$3,590*	*$58,611*	*$0*	*$36*	*$963*	*$800*	*$1,200*	*$800*	*$300*
		TOTAL COST	**$217,093**	**$156,929**	**$796,621**	**$76,952**	**$68,936**	**$285,541**	**$116,208**	**$85,567**	**$55,274**	**$57,103**
Fee:	Base	4%	$8,684	$6,123	$24,553	$915	$2,757	$11,422	$4,648	$3,423	$2,211	$2,284
	Base: Subs	2%	$0	$77	$3,656	$1,082	$0	$0	$0	$0	$0	$0
	Award	6%	$13,026	$9,185	$36,829	$1,372	$4,136	$17,132	$6,973	$5,134	$3,316	$3,426
	Award: Subs	3%	$0	$115	$5,484	$1,623	$0	$0	$0	$0	$0	$0
		TOTAL FEE	*$21,709*	*$15,501*	*$70,522*	*$4,991*	*$6,894*	*$28,554*	*$11,621*	*$8,557*	*$5,527*	*$5,710*
		TOTAL PRICE	**$238,802**	**$172,430**	**$867,143**	**$81,942**	**$75,829**	**$314,096**	**$127,829**	**$94,124**	**$60,801**	**$62,813**

Table 8-1
Task Summary
Omega Chemical RI/FS
WA No. 175-RICO-09BC

Tasks		2003 Rates	FS Report and RI/FS Report (FS) Task 12	Post RI/FS Support (PR) Task 13	Work Assignment Closeout (CO) Task 16	TOTAL HOURS	TOTAL COST
Labor:	P4	$55.50	52	152	2	1,190	$66,045
	P3	$41.50	130	661	18	6,006	$249,249
	P2	$29.66	260	496	14	7,820	$231,941
	P1	$27.01	84	52	0	821	$22,175
	T2	$27.48	0	0	0	1,626	$44,682
	T1	$13.97	0	0	0	0	$0
	TO	$21.19	60	46	32	1,058	$22,419
		Total Hours	**586**	**1,407**	**66**	**18,521**	
		Labor Cost before Escalation	$19,533	$52,958	$1,951		$636,512
		Labor Escalation	$643	$1,495	$64		$19,844
Escalated Labor Cost			*$20,176*	*$54,453*	*$2,016*		*$656,356*
Indirect Rates			*$30,264*	*$81,679*	*$3,024*		*$984,533*
Service Centers:	Health & Safety	$1.60	$750	$1,801	$84		$23,707
	Computer	$4.40	$2,578	$6,191	$290		$81,492
	Communication	$1.25	$733	$1,759	$83		$23,151
	Total Service Center		*$4,061*	*$9,751*	*$457*		*$128,351*
	Prod. Copiers	$0.050	$100	$0	$0		$735
	Travel See Table 8.3		*$0*	*$558*	*$0*		*$45,611*
Subcontracts:	Drilling, Survey,Util.Clear.,Traffic		$0	$0	$0		$182,800
	Laboratory		$0	$0	$0		$54,089
	Translation + Court Reporter		$0	$0	$0		$3,845
	Total Subcontracts		*$0*	*$0*	*$0*		*$240,734*
Other Direct Costs:	Equipment Rental		$0	$0	$0		$31,300
	Supplies		$0	$0	$0		$14,561
	Shipping/Reproduction		$586	$1,160	$100		$22,429
	Total Other Procurement		*$586*	*$1,160*	*$100*		*$68,290*
	TOTAL COST		**$55,188**	**$147,601**	**$5,597**		**$2,124,610**
Fee:	Base	4%	$2,208	$5,904	$224		$75,355
	Base: Subs	2%	$0	$0	$0		$4,815
	Award	6%	$3,311	$8,856	$336		$113,033
	Award: Subs	3%	$0	$0	$0		$7,222
	TOTAL FEE		*$5,519*	*$14,760*	*$560*		*$200,424*
	TOTAL PRICE		**$60,706**	**$162,361**	**$6,157**	**18,521**	**$2,325,034**

Table 8-2
Subtask Summary
Omega Chemical RI/FS
WA No. 175-RICO-09BC

Subtasks		2003 Rate	Subtask 1.01	Subtask 1.02	Subtask 1.03	Subtask 2.01	Subtask 3.01	Subtask 4.01	Subtask 5.01	Subtask 6.01	Subtask 7.01
Labor:	P4	$55.50	56	17		9	34		80	242	318
	P3	$41.50	450	90	660	695	612	120	409	1,176	367
	P2	$29.66	200	43		529	3,902	80	110	1,268	218
	P1	$27.01	370			8				16	28
	T2	$27.48	28			134	1,424				
	T1	$13.97									
	T0	$21.19	72	18	208	162	104	40	16	104	64
		Total LOE Hours	**1,176**	**168**	**868**	**1,537**	**6,076**	**240**	**615**	**2,806**	**995**
		Labor Cost before Escalation	$40,004	$6,335	$31,798	$52,363	$184,354	$8,200	$25,015	$102,480	$41,458
% Effort in GFY 2004			80%	50%	50%	5%	10%	0%	25%	10%	0%
% Effort in GFY 2005			10%	40%	45%	95%	90%	100%	75%	90%	100%
		Labor Escalation	$903	$169	$933	$1,744	$5,565	$279	$834	$3,393	$1,460
Escalated Labor Cost			*$40,906*	*$6,505*	*$32,730*	*$54,107*	*$189,919*	*$8,480*	*$25,849*	*$105,873*	*$42,918*
Indirect Rates			*$61,360*	*$9,757*	*$49,096*	*$81,160*	*$284,879*	*$12,720*	*$38,774*	*$158,810*	*$64,376*
Service Centers:	Health & Safety	$1.60	$1,505	$215	$1,111	$1,967	$7,777	$307	$787	$3,592	$1,274
	Computer	$4.40	$5,174	$739	$3,819	$6,763	$26,734	$1,056	$2,706	$12,346	$4,378
	Communications	$1.25	$1,470	$210	$1,085	$1,921	$7,595	$300	$769	$3,508	$1,244
		Total Service Center	*$8,150*	*$1,164*	*$6,015*	*$10,651*	*$42,107*	*$1,663*	*$4,262*	*$19,446*	*$6,895*
	Prod Copiers	$0.05	$100	$25	$0	$45	$0	$0	$15	$450	$0
		Total Travel See Table 8-3	*$0*	*$684*	*$457*	*$3,531*	*$38,306*	*$0*	*$0*	*$0*	*$1,219*
Subcontracts:	Drilling, Survey,Util.Clear.,Traffic						$182,800				
	Laboratory							$54,089			
	Translation + Court Reporter					$3,845					
		Total Subcontracts	*$0*	*$0*	*$0*	*$3,845*	*$182,800*	*$54,089*	*$0*	*$0*	*$0*
Other Direct Costs:	Equipment Rental						$31,300				
	Supplies					$650	$13,911				
	Shipping/Reproduction		$72	$72	$0	$2,940	$13,400	$0	$36	$963	$800
		Total Other Direct Costs	*$72*	*$72*	*$0*	*$3,590*	*$58,611*	*$0*	*$36*	*$963*	*$800*
		TOTAL COST	**$110,588**	**$18,207**	**$88,298**	**$156,929**	**$796,621**	**$76,952**	**$68,936**	**$285,541**	**$116,208**
Fee:	Base	4%	$4,424	$728	$3,532	$6,123	$24,553	$915	$2,757	$11,422	$4,648
	Base: Subs	2%	$0	$0	$0	$77	$3,656	$1,082	$0	$0	$0
	Award	6%	$6,635	$1,092	$5,298	$9,185	$36,829	$1,372	$4,136	$17,132	$6,973
	Award: Subs	3%	$0	$0	$0	$115	$5,484	$1,623	$0	$0	$0
		TOTAL FEE	*$11,059*	*$1,821*	*$8,830*	*$15,501*	*$70,522*	*$4,991*	*$6,894*	*$28,554*	*$11,621*
		TOTAL PRICE	**$121,646**	**$20,028**	**$97,128**	**$172,430**	**$867,143**	**$81,942**	**$75,829**	**$314,096**	**$127,829**

Table 8-2
Subtask Summary
Omega Chemical RI/FS
WA No. 175-RICO-09BC

Subtasks		2003 Rate	Subtask 9.01	Subtask 10.01	Subtask 11.01	Subtask 12.01	Subtask 13.01	Subtask 16.01	TOTAL HOURS	TOTAL COST
Labor:	P4	$55.50	70	62	96	52	152	2	1,190	$66,045
	P3	$41.50	148	190	280	130	661	18	6,006	$249,249
	P2	$29.66	500	200		260	496	14	7,820	$231,941
	P1	$27.01	157	50	56	84	52		821	$22,175
	T2	$27.48			40				1,626	$44,682
	T1	$13.97							0	$0
	T0	$21.19	52	40	40	60	46	32	1,058	$22,419
		Total LOE Hours	**927**	**542**	**512**	**586**	**1,407**	**66**	**18,521**	
		Labor Cost before Escalation	$30,199	$19,456	$20,407	$19,533	$52,958	$1,951		$636,512
% Effort in GFY 2004			0%	0%	0%	0%	30%	0%		
% Effort in GFY 2005			100%	100%	100%	100%	60%	100%		
		Labor Escalation	$978	$660	$723	$643	$1,495	$64		$19,844
Escalated Labor Cost			*$31,177*	*$20,116*	*$21,131*	*$20,176*	*$54,453*	*$2,016*		*$656,356*
Indirect Rates			*$46,766*	*$30,174*	*$31,696*	*$30,264*	*$81,679*	*$3,024*		*$984,533*
Service Centers:	Health & Safety	$1.60	$1,187	$694	$655	$750	$1,801	$84		$23,707
	Computer	$4.40	$4,079	$2,385	$2,253	$2,578	$6,191	$290		$81,492
	Communications	$1.25	$1,159	$678	$640	$733	$1,759	$83		$23,151
		Total Service Center	*$6,424*	*$3,756*	*$3,548*	*$4,061*	*$9,751*	*$457*		*$128,351*
	Prod Copiers	$0.05	$0	$0	$0	$100	$0	$0		$735
		Total Travel See Table 8-3	*$0*	*$428*	*$428*	*$0*	*$558*	*$0*		*$45,611*
Subcontracts:	Drilling, Survey,Util.Clear.,Traffic									$182,800
	Laboratory									$54,089
	Translation + Court Reporter									$3,845
		Total Subcontracts	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*		*$240,734*
Other Direct Costs:	Equipment Rental									$31,300
	Supplies									$14,561
	Shipping/Reproduction		$1,200	$800	$300	$586	$1,160	$100		$22,429
		Total Other Direct Costs	*$1,200*	*$800*	*$300*	*$586*	*$1,160*	*$100*		*$68,290*
		TOTAL COST	**$85,567**	**$55,274**	**$57,103**	**$55,188**	**$147,601**	**$5,597**		**$2,124,610**
Fee:	Base	4%	$3,423	$2,211	$2,284	$2,208	$5,904	$224		$75,355
	Base: Subs	2%	$0	$0	$0	$0	$0	$0		$4,815
	Award	6%	$5,134	$3,316	$3,426	$3,311	$8,856	$336		$113,033
	Award: Subs	3%	$0	$0	$0	$0	$0	$0		$7,222
		TOTAL FEE	*$8,557*	*$5,527*	*$5,710*	*$5,519*	*$14,760*	*$560*		*$200,424*
		TOTAL PRICE	**$94,124**	**$60,801**	**$62,813**	**$60,706**	**$162,361**	**$6,157**	**18,521**	**$2,325,034**

Table 8-3
Travel Cost Estimate Summary
Omega Chemical RI/FS - WA No. 175-RICO-09BC

					Quantities (No. of Days)					Rates					Totals						
Subtask	Staff	From	To	Reason for Travel	Airfare	Lodging	Meals	Vehicle Rental	Other*	Airfare**	Lodging	Meals	Vehicle Rental	Other*	Airfare	Lodging	Meals	Vehicle Rental	Other*	Trip Totals	Subtask Totals
1.01															$0	$0	$0	$0	$0	$0	$0
1.02	PM,SM	SF,SB	Site	Meetings	1	1	2	2	2	$350	$120	$42	$45	$20	$350	$120	$84	$90	$40	$684	$684
1.03	SM	SBO	SF	Meeting	1		1	1	1	$350	$120	$42	$45	$20	$350	$0	$42	$45	$20	$457	$457
2.01	CR	SCO	Site	Public Mtg			33	33	33	$350	$120	$42	$45	$20	$0	$0	$1,386	$1,485	$660	$3,531	$3,531
3.01	TM,HY,SM	SCO,SCO,SBO	Site	Field Work			358	358	358	$350	$120	$42	$45	$20	$0	$0	$15,036	$16,110	$7,160	$38,306	$38,306
4.01															$0	$0	$0	$0	$0	$0	$0
5.01															$0	$0	$0	$0	$0	$0	$0
6.01															$0	$0	$0	$0	$0	$0	$0
7.01	SM,RA	SBO,SCO	SF / Site	Meetings	2	2	2	3	3	$350	$120	$42	$45	$20	$700	$240	$84	$135	$60	$1,219	$1,219
8.01															$0	$0	$0	$0	$0	$0	$0
9.01															$0	$0	$0	$0	$0	$0	$0
10.01	SM,EN	SBO,SCO	Site	Meeting			4	4	4	$350	$120	$42	$45	$20	$0	$0	$168	$180	$80	$428	$428
11.01	SM,EN	SBO,SCO	Site	Meetings			4	4	4	$350	$120	$42	$45	$20	$0	$0	$168	$180	$80	$428	$428
12.01															$0	$0	$0	$0	$0	$0	$0
13.01	SM,TR	SBO,SCO	Site	Meetings			4	6	6	$350	$120	$42	$45	$20	$0	$0	$168	$270	$120	$558	$558
15.01															$0	$0	$0	$0	$0	$0	$0
16.01															$0	$0	$0	$0	$0	$0	$0
																			TOTAL	$45,611	$45,611

*Other: Explanation (details)
gas for rental car